

Some Diseases of War and Their Effects on Civil Practice

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Men and women serving in the three services during the war were subject to the same group of medical diseases as are civilians in the same age group. The incidence, in some instances, differed with the problems of diagnosis and management were the same and the sequelae which are prolonged into civil life in no way differ in the main from those encountered in the civilian population. However, by reason of geographical distribution and other factors, more or less peculiar to military service, a number of conditions were frequently observed which are not commonly seen in civilians in this area. Some of these conditions persist or have sequelae which have been carried into civil life and which constitute relatively new or strange and unaccustomed problems in civil practice. It is the purpose of this paper to present the more important conditions of the latter group and to point out the presence or absence of sequelae with the intention of indicating their probable significance when those who suffered from them are seen as civilians. I believe it is equally important that some should be stressed as negative as well as positive reasons as there is a well known tendency for those leaving military service to attribute some or all of their future symptoms to diseases acquired during service, which may often becloud the issue. Hence a full knowledge of the probability and nature of the after effects of these disorders is of great value in proper diagnosis and treatment.

Infectious or Epidemic Hepatitis

Early in the war a disease clinically identical with the catarrhal jaundice assumed epidemic proportions among troops in practically every theatre of operations, and came to be known generally as Infectious or Epidemic Hepatitis. Simultaneously another clinically similar condition appeared in association with Yellow Fever Vaccine, Homologous Serum inoculations and transfusion of human blood and plasma.

It has been fairly well established that although these conditions may not be due to identical agents, they are all infections caused by filterable agents, giving rise to a generalized infection in which a diffuse hepatitis is the most constant and important lesion. In the acute infectious type, the route of infection has not been established beyond question; it is most probably by ingestion but possibly also by inhalation, whereas the Homo-

logous Serum, transfusion and possibly also the so-called Arsenical Hepatitis are by parenteral inoculation. It became evident that in all these types the disease did not, in every case, produce the classical picture but that a large number of individuals suffered a mild form of the disease in which jaundice might not appear but the symptoms of generalized infection and enlargement and tenderness of the liver were present. It is not proposed to enter into further discussion of the acute disease but a consideration of the possible sequelae is pertinent.

In a certain relatively small proportion of cases of Hepatitis symptoms and signs, with or without jaundice, persist for varying periods of time, up to two or three years, a condition which Barker^{1 & 2} has termed Chronic Hepatitis. The clinical picture is fairly clear cut. There is a history of an acute onset followed by jaundice usually differing in no way from the ordinary case. Usually there has been improvement but not complete recovery and commonly, the patient was allowed to return to full activity before being completely well. He commonly had not regained his weight, continued to complain of lassitude, fatigability and in many instances his complaints closely simulated the picture of an anxiety state. In addition, however, there are **always** complaints referable to the right upper quadrant of the abdomen, the lower chest or right loin, usually dull discomfort, heaviness, aching or shooting pains characteristically aggravated by exertion or jolting. There may be considerable anorexia, vague dyspepsia and mild diarrhoea although the latter suggests a complicating intestinal disorder. Fever is usually absent, a point of distinction from Amoebic Hepatitis. Jaundice may or may not be present and in varying degrees. The liver is enlarged and tender, although it may require considerable exertion to manifest this, a point which Barker has particularly stressed. There is no leucocytosis and only moderate elevation in the sedimentation rate. Liver function tests show varying, usually minor degrees of functional impairment and the most valuable tests are the Bromsulphthalian test, the Hanger Cephalin Cholesterol Flocculation test and the Quantitative Determination of Bilirubin.

The essential features in the diagnosis are the existence of the enlarged and tender liver with constitutional symptoms and especially the aggravation or appearance of the signs with exercise.

The laboratory studies give important confirmatory evidence. The dividing line between a prolonged attack of acute hepatitis and chronic hepatitis is an arbitrary one but Barker's practice of terming any case which remains active longer than three months chronic is a satisfactory one.

The outcome of this syndrome is especially important from our point of view. Occasional cases of acute hepatitis develop widespread necrosis and die but the mortality is less than one per thousand cases. If cirrhosis of the liver is ever a sequel it is extremely rare so that, so far as is known mortality both early and late is very small. However, the morbidity may be prolonged into months and even years and factors which are under the physician's control play a part in delaying recovery. It has been demonstrated beyond doubt that continued activity, even sedentary life, prolongs the illness and that bed rest plus modern dietary measures shorten its course. The patient should be kept in bed except for bathroom privileges, and fed on a high caloric diet containing about 150 grams of protein, chiefly grade A protein, and about 400 grams of carbohydrate with fat kept to a minimum of about 40 grams. On this regime the majority of cases have become inactive even after physical and laboratory tests following exertion in two months. Concurrent infections, especially active or latent amoebiasis, delay recovery and should be treated when discovered. Alcohol has been observed to precipitate relapses and injuries or surgical operations have the same effect. Elective surgical procedures are best deferred for at least three months after hepatitis.

The existence of such a clinical syndrome in returned soldiers who have had hepatitis during service is not great, in fact most uncommon. Nevertheless, an appreciation of its existence and nature is important as it should enter the differential diagnosis in a variety of disorders, especially in patients having had jaundice in service, in order that it may be excluded as a cause of persistent disability as well as to be recognized.

Relapsing Malaria

In Canadian troops serving in the Mediterranean and Pacific Theatres there was a high incidence of Malaria, and a large number have suffered from malarial relapses since leaving those Theatres. In both the Mediterranean and Pacific Theatres the common type of malarial infection was due to *P. Vivax* or benign Tertian Malaria which shows a relapse rate intermediate between malignant Tertian and Quartan Malaria. Experience has shown that relapses in Benign Tertian Malaria rarely occur after the first eighteen months to two years after leaving the Malarious zone, the

peak incidence being at from six to nine months. The number of relapses shows marked individual variation but there are a number of predisposing or precipitating factors such as exposure, injury, surgical operations, acute infections and not uncommonly alcoholic excess. Not infrequently a given individual may suffer from very frequent relapses during the first one to two years. The time interval is of great importance from the clinical point of view in assessing acute febrile illnesses in patients who have previously suffered from malaria, as they very commonly attribute any febrile illness of sudden onset to a recurrence of their malaria, and while this may well be the case within the first year or two after exposure it is most improbable after that time. For this reason, it is most important that an accurate diagnosis be made before treatment is commenced. The typical intermittent fever, the presence of Splenomegaly and leucopenia are suggestive but the only safe criterion of diagnosis is the demonstration of the parasite in the blood and specific therapy should be withheld until a positive diagnosis has been made. In most cases diagnosis is not difficult, but in others a number of smears are required and it is probably safer to rely more on the number of smears examined than the time relation to the fever cycle.

It is now over eighteen months since the Canadian Army left Italy, and about two years since their last exposure in the Malaria season and the assumption should now be that no such veteran who states he has or is suspected of having malaria actually has, until proof is established. The same reasoning applies to those returned from the Pacific but a number have still been home less than a year and relapses still occur but with diminishing frequency. There is some evidence to show that the Benign Tertian Malaria acquired in the Pacific shows a higher relapse rate than the Italian variety.

The time factor should also be considered in relation to treatment and prognosis. As yet, no single drug or combination of drugs has been found to be curative of relapsing Malaria. Quinine or Atabrine are effective in controlling the attack but only guarantee against relapse while being administered. A seven-day course of either drug offers as much protection against future attacks as longer courses and if for any good reason it is essential to guard against relapse, it is wise to give 0.1 gram Atabrine daily as suppressive therapy. In this zone relapsing Malaria does not constitute a public health hazard and within a year should cease to be of any real clinical significance.

Dysentery

Practically every individual who served in operational theatres during the past will give

history of having had one or more attacks of dysentery commonly termed dysentery and a fair proportion it may have been bloody dysentery. In the vast majority, the causative organism was one of the dysentery group, the most common strain being the Flexner Strain and the sulfonamide drugs proved extremely successful in putting short attacks. It seems highly probable that in addition, sulfonamides prevented the condition from becoming chronic as was seen in many cases following the First Great War.

Bacterial dysentery forms no problem among returned soldiers and chronic ulcerative colitis is more common than in the general population. Although acute Amoebic Dysentery was seen in the Far East and also to a limited extent in the Mediterranean Theatre, it has become evident that cases of chronic amoebiasis with minimal clinical manifestations and asymptomatic amoebae carriers form a very appreciable proportion of those returning from both the Mediterranean and Far East. This latter group is of extreme importance both from the viewpoint of morbidity among returned soldiers but also from the Public Health point of view, as they introduce a reservoir of infection into a community which hitherto has been relatively free. Doctor T. H. Williams, pathologist at the Deer Lodge Hospital, has undertaken a very ambitious survey of returned personnel and has published the results of the earlier phases of his study. In his first 500 cases³, the majority of which came from the Mediterranean Theatre, but others from other theatres were included, the incidence was 13%. Continuation of this survey has borne out his early figures and it is evident that at a minimum of 12% of those having been in the Mediterranean are either symptomatic or asymptomatic carriers of amoebae, as are approximately the same percentage of those who were prisoners in the Pacific, according to the methods used on the Survey. If more thorough studies had been practicable it is possible that this figure might have risen to 20%⁴.

No extensive survey of troops from North-West Europe has been possible but the indications are that the incidence of amoebiasis is considerably lower, probably not much above the 1 to 2% present in the Civilian population. From these figures it can be seen that, although a large number of cases have been diagnosed and treated there are undoubtedly still many asymptomatic cases all at large. The preliminary stages in the diagnosis depend on the awareness of clinicians of the possibility of such infection existing in patients complaining of chronic ill-health, especially in the presence of vague abdominal complaints, low grade fever or mild, sometimes almost

insignificant, bouts of diarrhoea but the final proof lies with the laboratory. It is not intended to enter into a discussion of the technical aspects of demonstrating the presence of vegetative forms or cysts of *E. Histolytica* in the stools but there are certain aspects which are of prime importance from both the clinical and laboratory points of view. Firstly, in asymptomatic cases cysts are likely to be found and only after strong saline purgation may motile forms be demonstrated. However, cysts are not found in liquid stools and in such cases only properly collected specimens delivered immediately for examination are of any value. This point cannot be overemphasized.

Secondly, in chronic and asymptomatic cases repeated examinations, rarely as many as ten, may be required before the amoebae are demonstrated so that single examinations are of little value if negative. Actually the demonstration of amoebae in stools is practically a hospital procedure unless special facilities for collecting and examining specimens are available, and even when the patient is in hospital special care regarding the collection and delivery of specimens is imperative.

The treatment of Amoebiasis with emetine and other amoebicidal drugs is most satisfactory as regards symptomatic relief and apparently a fairly high percentage of permanent cure, as evidenced by disappearance of cysts from the stool, may be obtained early in the infection. However, there is an increasing amount of evidence that permanent elimination of infection in the chronic forms is very difficult and reappearance of the parasite after varying periods of time up to a year or more occurs in a discouragingly high percentage of cases, the percentage depending on the care and frequency with which searches are made. In the opinion of a number of competent observers, amoebiasis should be regarded in much the same light as tuberculosis and the term cure should give away to the more cautious prognosis of an apparently arrested. Undoubtedly the problem of amoebiasis in returned troops is one that may face us for years to come.

There is one other intestinal protozoon, namely *giardia lumblia*, which has been found in a significant number of patients, some of whom have mild diarrhoea or bowel disturbance. Some doubt as to the pathogenicity of *giardia* still exists. It is mentioned chiefly because it is readily controlled by the administration of Atabrine 0.1 grams three times a day for five days. That Atabrine is not an ideal parasiticide is indicated, however, by the fact that many developed giardiasis while taking suppressive Atabrine and the incidence of recurrence is fairly high.

Helminthic Infections

Only two types of Helminthic infestations have been found to occur with any degree of frequency, largely in repatriated prisoners from the Pacific, namely infestation with *Ascaris Lumbricoides*, the common round worm of children, and *Trichuris*, the whipworm, and the incidence of these parasites especially the former, was very high in this group. From the clinical standpoint neither has assumed much importance as the majority have few or no symptoms beyond having passed worms. Some complain of vague abdominal distress, usually those who are aware of their infestation, and Helminthic infestation has not been found to be an important cause of obscure or undiagnosed abdominal symptoms. The whipworm is of doubtful pathogenicity in adults. The results of treatment are variable. *Trichuris* is notoriously difficult to eradicate by antihelminthics, but heavy infections may be controlled. The commonly used drug for *Ascaris* has been Hexylresorcinol in crystalloids; a total dose of 1.0 grams being given followed by saline purgation. Repeated courses are frequently required and in a few instances eggs have persisted after four or more courses. In such instances, a trial of other antihelminthics such as Oil of *Chenopodium* should be carried out.

Nutritional Disorders

The biggest single problem facing those in this district in charge of the medical care of men returning from the theatres of war involves the group who were Japanese prisoners from 1941 to 1945. The mortality among prisoners was considerable, but the current problem is the care and rehabilitation of the survivors. A variety of infections and parasitic diseases were prevalent but almost without exception this group suffered from severe nutritional deficiency, chiefly what is considered to have been Thiamine deficiency or Beri Beri, although it would be expected, multiple deficiencies undoubtedly occurred in most. On their return to this country these men had had several months of adequate diet and vitamin supplements and only the residual symptoms and signs were evident. The study of these, in itself, constitutes a large problem which has been undertaken by Doctor J. D. Adamson and some of his associates⁵ and the short summary which I shall present has been obtained from them.

To date this survey covers approximately 250 men, practically all N.C.O.'s or men who were imprisoned in both Hong Kong and Japan. Careful inquiry into subjective symptoms and physical and neurological examinations have been carried out. It shows that there is a very high incidence of residual symptoms and a considerable but much lower incidence of objective findings, a discrepancy

which must be interpreted not only in the light of the nature of the disorders which these men suffered but also after due consideration, has been given to the psychological aspects of four years of imprisonment under appalling circumstances and the difficulties of readjustment to home and self-sufficiency. Before their liberation practically 100% suffered from paraesthesias and other peripheral nerve symptoms colloquially termed "electric feet." Out of the group of men studied, 87% continue to admit varying degrees of paraesthesias, 75% complain of an abnormal tendency to excessive perspiration and subjective cardiovascular complaints such as palpitation, varying degrees of breathlessness and local precordial discomfort, but the incidence of clinical or electrocardiographic evidence of cardiac disease is very low. 66% have varying gastro-intestinal symptoms and 54%, after an initial voracious appetite immediately after liberation, have an anorexia in some degree, such as morning anorexia.

A common and the most important finding has been definite visual loss usually with limited scotomata which occurs to varying extent in 29%. It appears that these scotomata represent permanent retinal damage, a very real and in some instances, serious permanent handicap. 75% complain of subjective symptoms referable to the eyes, two-thirds of which have no demonstrable lesions.

The other most common objective findings are those of residual peripheral neuritis which exhibit considerable variation in degree. As mentioned, 87% have symptoms; approximately 30% show residual signs. The neurological signs which occur show the usual distribution of peripheral neuritis, being especially marked in the distal portions of lower extremities. Diminution in vibratory sense occurred in 29%, as did diminished sensation to pin prick; some degree of loss of sensation to light touch and in temperature appreciation was observed in 27% and 26% respectively; minor severe Rombergism occurred in 26%. The knee jerks and ankle jerks were pathologically diminished or absent in 21% and some degree of impairment of deep pain sensation, position sense and deep touch occurred in 10 to 11%.

These are the findings persisting after three months of proper diet and vitamin therapy. The question immediately is raised as to whether or not complete recovery can be anticipated in the more severe cases. Certainly, after the initial deficiency was corrected massive doses of vitamin concentrates have not been beneficial and it would appear that the degree of recovery is entirely dependent on the extent of the nerve degeneration. In all but a few, slow but appreciable improvement is continuing a year after their liberation and it seems probable that few, if any, will suffer more

manent loss of function. On this premise, the general attitude should be to encourage return to full and useful a life as is possible and to encourage further prolonged hospitalization and invalidism, retaining an open mind as to whether permanent, if minor disability may remain. It is beyond the scope of this paper to enter into the psychological problems involved in this group, there is no doubt that they play an important, of a major, part in rehabilitation.

To summarize; I have briefly discussed the sequelae of certain diseases that existed during service and have been to a greater or lesser extent carried on into civil life. There are, of course, many others but they constitute the diseases that

are ordinarily seen in civilians of the military age group and with which all are familiar.

Fortunately the majority of the diseases discussed offer less and less of a problem with the passage of time, and an appreciation of this fact in respect to such diseases as infective hepatitis and malaria is almost as important in the management of the returned soldier as is the recognition of the more persistent disorders such as amoebiasis.

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ANAESTHESIOLOGY

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Next Meeting February 4

The next meeting of the Winnipeg Anaesthetists' Society will be a Dinner Meeting at the Medical Arts Club, Tuesday, February 4, at 6.15 p.m.

Programme

1. Modern Concepts of Respiratory Control . . .

Dr. H. Rice, U. of Man.

2. Presentation and Discussion of Post-operative fatalities.

3. Business Session.

Report of Meeting

At the January meeting of the Winnipeg Anaesthetists' Society Professor M. R. Ormerod presented a most interesting and instructive address on the Pharmacology of the Parasympathetic Nervous System. After reviewing briefly the fundamental pharmacology of the autonomic nervous system Dr. Ormerod outlined recent advances including new drugs. A warning was sounded against the routine use of large doses of drugs and reliance being placed on new preparations which have not received wide clinical application and trial. Dr. Ormerod pointed out that constant vigilance and close observation of the anesthetized patient with the administration of minimal therapeutic doses of autonomic drugs when required is less hazardous than the administration of large doses to a patient who has been permitted to enter a state of ex-

The Round Table discussion—"The Choice of Anaesthesia for Exploration for Nucleus Polposus" brought to light radically different fundamental technics as well as various modifications of standard technics. It became apparent that the ability and experience of the anaesthesiologist is important as well as the technic employed.

In regard to the presentation and discussion of post-operative fatalities the following outline was followed:

1. Was this a non-preventable death from the standpoint of Anaesthesia.

2. Was this a preventable death from the standpoint of Anaesthesia. If preventable was it because of : (a) Error in selection of agent or method; (b) Improper management of the anaesthesia period; (c) Improper resuscitation.

Several interesting and instructive cases were presented. It was concluded that in order to decrease post-operative mortality rates close co-operation between surgeon and anaesthesiologist is imperative not only during the operation but also in the pre and post-operative phase.

P. C. L.

Abstract

General supportive measures in course of anaesthesia, therapeutic agents and apparatus. S. Clin. North America. (August), 1945. Seldon, T. H.

"In this country most persons have a good diet. However, in spite of this one sees fairly frequently people who are brought to the hospital in extreme states of malnutrition or otherwise debilitated from some chronic illness. At the present time in other countries inadequate diets are usual. For that reason I shall try to include in this paper some detail relative to the daily nutritional requirements of a sick person. In the

medical case in which a condition of hypo-proteinemia is part of the picture a so-called nutritional edema fairly frequently appears. An effort should be made to keep the serum proteins within reasonable average levels; that is, 6 to 8 gm. per 100 c.c. of blood. If the patient can take orally a diet of protein of high biologic value containing all the essential amino acids, then the diet should prevent the drop in serum proteins usually expected. Milk, eggs and ground meat are of considerable value with this idea in mind. One gram of protein per kilogram of body weight should be a safe daily subsistence ration. However, for those persons who are sick or have been injured, the requirements are frequently greater. Such persons should get approximately 100 gm. of protein daily. However, in certain cases; for example, cases of old burns, it may be necessary to give much greater amounts.

"As far as the carbohydrate diet is concerned, approximately 100 gm. is needed daily to prevent ketosis. It is important to administer this amount because if less than this is administered, body protein will be broken down to make up for the deficiency of carbohydrates. Fat in a palatable form may be given to most ill patients. Enough water above that formed from food to provide for sensible and insensible loss and to provide for at least 1,000 c.c. of urine daily is preferable. At least 5 gm. of salt should be given unless this amount is contraindicated by congestive heart failure, nephritis or nephrosis and edema. A patient who is depleted in salt does not eat or drink well. One thousand cubic centimeters of physiological saline solution provides 9 gm. of salt. Vitamins should be supplied either orally or intravenously as necessary. The following table gives the average amounts of dietary constituents required daily:

Water	2,000 to 3,000 cc.
Salt	5 to 10 gm.
Protein	75 to 150 gm.
Carbohydrate	100 to 300 gm.
Fat, vitamins and calories as required.	

"In administering parenteral fluids, it must be remembered that excessively long periods of administering intravenous fluids are very tiring and distressing to the patient. Water, saline solution, proteins and carbohydrates in the foregoing approximate amounts all may be given intravenously. Protein may be provided in the form of whole citrated blood, blood plasma, hydrolyzed protein and some of the newer preparations of amino acids. Every 100 cc. of whole citrated blood contains approximately 15 gm. of hemoglobin and 4 gm. of plasma protein. The principal use of this hemoglobin and protein is to increase the blood volume and circulation. Hemoglobin itself is not suitable

for tissue protein replacement. However, plasma is metabolized to some degree and thus it does provide a source of nitrogen. Five per cent amino acid hydrolysate in 5 per cent dextrose solution neutralized to a pH of 6.5 is the usual preparation administered. The rate of administration of amino acids must be regulated. If injected too rapidly they may produce nausea and vomiting. And if they are administered too slowly the patient will experience the aforementioned discomforts. Approximately 500 c.c. of 5 per cent solution of amino acids per hour may be administered and utilized to advantage. Fifteen hundred cubic centimeters of amino acid solution per day is the usual accepted amount. Amino acids administered orally may be given in much greater quantities than this. At the present time there is no fat preparation that may be administered intravenously. During short illnesses the average patient does not require vitamins. However, in prolonged illnesses the addition of vitamins is important. The average daily requirements of the more important ones are: thiamine (B1) 10 mg., riboflavin (B2) 5 mg., nicotinic acid 20 mg., ascorbic acid (C) 100 mg. The risk of surgery is least when the patient comes to operation with the tissues adequately supplied with fluid, the food reserves in their normal state, the metabolism adjusted as perfectly as it can be, the intestines working normally, the circulation at its optimal level and a nervous system as calm, disturbed and peaceful as in daily life.

"Dehydration is a result of a reduction of the amount of water in the body, the first loss being from the interstitial fluid. In many instances the dehydration is directly due to the loss of fluid from the gastro-intestinal tract vomiting, diarrhea. Maddock and Collier have suggested a means for calculating the quantity of fluid lost. It should be given to surgical patients who cannot take fluid by mouth.

1. Water for urine—1,500 c.c.
2. Water for vaporization—2,000 c.c.
3. Variable amount of fluid to replace fluid lost by vomiting, blood, feces, biliary and intestinal fistulas, exudations and so forth.
4. If the patient is already dehydrated, give sufficient water to restore depleted body fluid (10 per cent of body weight).

At this point it might be well to point out that general edema is particularly likely to follow the use of large quantities of salt solution when patients have low serum protein. In many cases in which treatment is surgical, dehydration is present and in these cases the parenteral administration of fluid may be carried out better. If temporarily there are certain contraindications to the oral administration of fluid. It is generally

assumed that 5 per cent solution of glucose in distilled water is as good as any fluid under these circumstances. The importance of this question increases if the patient is dehydrated. With the replacement of the sodium and chloride ions, all the materials used in the plasma structure can be applied by the metabolic processes of the body. And in the absence of food. Therefore, the administration of physiologic solution of sodium chloride will answer this problem.

For the ordinary postoperative patient 5 to 9 g. of sodium chloride daily is sufficient. Fluids in excess of this requirement may be provided by the administration of glucose in distilled water. There is an impairment of renal function accompanying the dehydration, glucose is indicated. Glucose also aids in the oxidation of the ketone acids. Relatively large amounts of glucose solution may be used without too great fear of the appearance of edema. This does not hold true for the salt solution, particularly if the patient is suffering from low serum proteins resulting from inadequate food intake. Large blood losses could be replaced by a blood transfusion. It is very easy to err in treatment by not meeting the caloric and nitrogen requirements during the post-operative period. Ravdin has shown that a post-operative combination of high protein and carbohydrate diet aids in the removal of fat from the liver, and replenishes the normal glycogen and protein deposit stores. The main contributing factors in the causation of shock are not always the same. Lack of food and water and exposure could increase the possibility of impending shock. If the patient sweats profusely, the supply of fluid for the blood stream is interfered with. To meet this to a degree, we have found it advisable to start a slow intravenous drip of 5 per cent glucose in saline solution, either before the sweating appears or at its first appearance. In certain extensive operative procedures, a slow intravenous drip is started before the operation is begun. This serves two purposes. Through a 15 gage Lewisohn needle fluids may be added before invisible or visible loss of fluid occurs. If a quick drop of pressure does occur, the needle is already within the lumen of the vessel and more fluid, plasma or whole blood can be run in quickly to combat impending or existent shock. Attempts to treat shock symptomatically occasionally may lead to more undesirable conditions of the patient. It has been recognized for a long time that a falling blood pressure and a rapid, weak pulse, accompanied by other signs of a failing circulation, frequently mean a grave picture for a patient. This picture does not necessarily mean cardiac insufficiency. The use of cardiac stimulants is not the answer necessarily. In the foregoing con-

ditions, peripheral vasoconstriction is already present and the addition of a sympathomimetic drug tends only to aggravate the situation by making an already present condition of peripheral vasoconstriction more severe. This may produce a greater degree of tissue anoxia, thus aggravating the shock condition. Intravenous fluids, plasma, blood or other substitutes might better be added.

"It must be admitted that the drop of blood pressure accompanied by a vasodilation, as in a spinal anaesthetic procedure, or when the patient is warm and dry, usually responds well to one of the vasoconstrictor drugs; for example, epinephrine, neosynephrin hydrochloride, ephedrine, and so on. But this does not hold true if the patient is cold and moist. Here again one of the intravenously administered fluids is more appropriate. On occasion $\frac{3}{8}$ to $\frac{3}{4}$ grain (0.024 to 0.05 gm. of ephedrine may be given intravenously or may be added to, 1,000 c.c. of intravenously administered fluid with a good response of blood pressure. Certain mechanical aids are used occasionally. Syncope, or primary shock, is benefited by the elevation of the feet. The administration of oxygen in any type of circulatory deficiency is important. Adrenal cortical hormone has been used by certain investigators. Its use would appear physiologically sound. One of the functions of the adrenal cortical hormone is to control capillary permeability. As is known, capillary permeability is disturbed in cases of shock. Hence the use of any agent which will aid in preserving the normal semipermeable quality of these structures appears basically sound. Wakim and Gatch have reported findings which justify the conclusion that as long as whatever is lost, whether it is plasma or whole blood, is not replaced, heating or chilling shocked animals is harmful, while keeping them comfortably warm contributes favorably toward their survival. The wisest thing to do for patients in shock is to avoid exposing them to cold by wrapping them in blankets but too much heat is contraindicated.

"Oral administration of fluids is perhaps the best route provided there are no specific contraindications. Some of the more desirable features of the rectal administration of fluids are that, sterile equipment is not necessary and tap water may be used. On the other hand, undesirable peristaltic waves may be started, the rate and amount of fluid absorbed are unpredictable and some patients complain of being very uncomfortable. This method is very inadequate if it is desired to supply glucose and sodium chloride, as these two solutions are not absorbed readily. Many surgeons prefer administration of fluids, by hypodermoclysis, however, in this method the rate and volume of absorption vary a good deal. The

intravenous route has one great advantage over its fellows in that one can give a known amount of fluid quickly or slowly. The procedure of placing especially designed needles into the sternal bone marrow space in adults or the tibial bone marrow space in small children and infants has proved very valuable in certain instances. When fluids are to be used, the physical as well as the biologic properties must be considered. Certain fluids are more important for food value than for shock therapy. In shock therapy, Taylor and Waters have set down a specification which if met would be almost ideal.

1. The size of the molecules of the solute should prevent ready escape of the solution from the blood vessels.

2. The osmotic pressure and viscosity of the solution should be as nearly that of blood as possible.

3. The solution should be isotonic with the erythrocytes.

4. It should be nonantigenic and innocuous. Its stability, ease of sterilization and ready availability are also important points to be considered. Distilled water alone must not be administered intravenously. Only isotonic solutions of sodium chloride should be used. There are relatively few if any indications for the use of a hypertonic saline solution. Five per cent solution of glucose is the solution most commonly used. This may be used either dissolved in distilled water or combined with saline. Six per cent solution of acacia in isotonic saline was used extensively in the last war. Many reports bear out its value. The use of this solution on occasion has resulted in certain reactions but in recent years the process of manufacture has improved and it would seem that the deleterious effects have disappeared to a great extent.

"Pectin is a colloidal carbohydrate, complex in composition, having a high molecular weight, and is obtained by a special process from citrus juices. Hartman and associates have investigated this product and have concluded that it is non-toxic and non-antigenic and is excreted readily within seventy-two hours. In a 5 per cent solution it has about the same osmotic pressure and viscosity as whole blood. It appears to have a more sustained effect as far as increased blood volume and blood pressure are concerned than has saline or glucose solution. It does take considerable care and dexterity in its preparation. Steam pressure sterilization does not change its physical properties. At the Clinic, Cook and his associates have used a 6 per cent solution of gelatin with seemingly good results in replacing fluid loss in certain cases of elderly patients during and following transurethral prostatectomy.

"Oral administration of amino acids should be effective. In those instances in which oral administration is contraindicated or there is a poorly functioning bowel, amino acids may be administered intravenously. Considerable care must be exercised in the intravenous administration of the amino acids. Severe reactions have been reported occasionally. It might be well to point out the advisability of very thorough cleaning of intravenous equipment following the use of amino acids. Unless very thoroughly cleaned, a pyrogenic reaction is likely to occur the next time an intravenous set is used. Amino acids themselves are not used in supportive measures as for instance in cases of shock in which the patient needs proteins. It must be remembered that amino acids must be given over relatively long periods to obtain desired results.

"Hemoglobin dissolved in Ringer-Locke solution, in plasma or in whole blood, diluted in sodium chloride solution can be made to give solutions with the same osmotic index as blood. Hemoglobin differs from other blood substitutes or plasma in being an oxygen carrier and in being able to stimulate a rise of blood pressure. Certain investigators feel that hemoglobin in Ringer's solution is superior to acacia and saline solutions, but inferior to plasma serum. The experiences gained in this war have proved conclusively that the use of whole citrated blood cannot be replaced entirely by that of other substances in certain conditions—namely, very severe loss of blood either in accidents, or in operations, and also secondary anemia before or after operation, and in certain other medical cases.

There are certain cases in which the prime need is an increase in the erythrocyte count, not necessarily blood plasma. In this condition the erythrocytes left after the withdrawal of blood plasma may be used. They have been transfused into patients both in thick concentrated form and diluted with an amount of saline glucose solution equal to the plasma previously withdrawn. Blood plasma can be stored in liquid, frozen or powdered form. In its liquid form it retains its value for the treatment of shock. Storage does produce a loss of prothrombin, fibrinogen, complement and antibodies.

Ordinarily 500 c.c. of fluids may be administered intravenously per hour; if conditions indicate that more rapid administration is warranted, then this should be done and the condition of the patient closely watched. As an average we take forty minutes to administer 500 c.c. of whole citrated blood. If a more rapid administration is indicated, we do not hesitate to transfuse the blood in more rapidity."

GYNECOLOGY

Edited by R. Lyons, B.A., M.R.C.S., L.R.C.P., M.R.C.O.G.

The Consideration in the Management of Pregnancy Toxaemia

A. W. Andison, M.D., M.R.C.O.G.

Since the aetiology of pre-eclamptic toxæmia eclampsia is still unknown, despite the immense amount of investigation which has been directed on the problem, the treatment of these conditions must remain on a very unsatisfactory basis. In this brief communication it is not proposed to discuss the details of therapy at present but to consider only some of the broader aspects of the management of these cases.

While there may be disagreement among authorities on the merits of the various measures indicated from time to time, there can be no doubt of the supreme value of rest in bed. (It may well be that this is the only part of treatment which has any value at all). Next in importance, though perhaps scarcely deserves to be described as treatment, is the careful, daily observation of the patient. This means that there must be recorded the following minimal data: blood pressure, amount of albuminuria expressed as a percentage, the amount of fluid intake and output and whether or not the foetal heart sounds are heard. In addition, any subjective symptoms are to be recorded, though in my experience these are invariably absent unless the toxæmia is in a very advanced state. It is high time that headache, vomiting, visual disturbances and epigastric pain be omitted altogether from the symptomatology of pre-eclamptic toxæmia and emphasized instead as the prodromata of fits. Apart from oedema, pre-eclamptic toxæmia is a disease of signs, not of symptoms.

It is by making every day these few simple observations that one is able to estimate the progress of the patient's condition and as I shall attempt to explain, progress has a most important bearing on management. From its standpoint it falls obviously into three categories.

The first of these comprises those cases which respond quickly to treatment, the blood pressure falling to within normal limits, the albuminuria subsiding and the oedema subsiding within a few days. Gradually increasing activity can be permitted these patients but they should be carefully watched for the duration of the pregnancy until a recrudescence of the condition occurs.

In contrast to the mild type are those cases in which the abnormal findings become steadily more marked, despite treatment. The blood pressure reaches 175-180 mm. Hg. or even higher, the cloud of albumin in the urine becomes pro-

gressively heavier, and there is a marked discrepancy between fluid intake and output. There may even be the development of symptoms. Here, too, management presents no problem. Labour must be induced without loss of time, regardless of the duration of the gestation, lest eclampsia supervene with all its attendant risks to mother and foetus. A drug induction can be administered first, using repeated small doses of pitocin but no quinine; if the patient is close to term it may be effective in initiating labour. Even if it fails it may bring about effacement or softening of the cervix and so facilitate artificial rupture of the membranes which should be performed after medical induction has been unsuccessful, providing other circumstances are favourable.

As is so often the case, it is the patients in the intermediate group between the two extreme types already mentioned, whose management presents the greatest problem. In these women the toxæmic condition, perhaps after an initial improvement with the institution of treatment, remains more or less stationary. The blood pressure does not reach alarming levels nor does it fall to normal; it may vary a few points from day to day but remains relatively fixed. The albuminuria and fluid balance may behave in the same way. The case is not urgent enough to justify immediate induction yet one cannot relax the rigidity of one's therapeutic regime.

The questions to be answered here are: How long can one permit such patients to remain with their toxæmia in this stationary state? Are there any risks to the mother or to the foetus from its prolonged continuation?

In the first place, there is always the danger of the sudden development of eclampsia. This is not a very likely occurrence, however, if the case is being carefully supervised. Another serious complication that may supervene without warning is accidental haemorrhage. These are the immediate risks. What of the remote sequelae of pre-eclamptic toxæmia?

At one time it was believed that chronic nephritis was a common late result, but this view is no longer held and should not influence the management of toxæmic patients. A more recent teaching has been that chronic arterial hypertension develops in as many as 50 per cent of women suffering from pre-eclamptic toxæmia. F. J. Browne and Gladys H. Dodds, from a study of a series of cases followed for periods varying from six months to twelve years, concluded that the older the patient, the greater her parity, the higher the blood pressure and the longer the

duration of the illness before her delivery, the greater is the likelihood that she will develop chronic hypertension. It does not necessarily follow, however, that it is the toxæmia that is the cause of the persistently raised blood pressure. A further study by F. J. Browne and Josephine Barnes, in which an analysis was made of the blood pressure of 1956 women (915 nulliparous and 1041 parous) revealed that no statistically significant differences could be found between the mean level of blood pressure in nulliparous and parous women at any age. These investigators conclude that patients who develop hypertension following a toxæmic pregnancy would have done so if they had never been pregnant; that toxæmia of pregnancy is a temporary disorder, leaving of itself no permanent lesion. These conclusions are so opposed to our previously held conceptions that we may be a little hesitant about accepting them, but if a greater body of evidence can be brought forward to support them our management of toxæmic patients must be altered. Hitherto we were very loath to permit a patient to continue for longer than a period of three weeks after toxæmia had become established because of the risk of a subsequently permanently raised blood pressure, but if Brown and Barnes are correct there is no justification for inducing premature labour in a toxæmic woman in order to protect her from this sequel.

So far we have been concerned only with the dangers to the mother from allowing her to continue in the toxæmic state. There are certain risks to the foetus as well. In the first instance, intra-uterine death can occur at any time from placental insufficiency, the result of extensive infarction. There is no means of determining those cases in which such an event is to be expected. The foetal heart sounds may suddenly be no longer heard in a case where the signs of toxæmia have been slightly marked and present for only a few days. Another patient may have suffered from a severe form of the disease for two or three weeks and may even have developed eclamptic convulsions yet be safely delivered of a living child. It is therefore an ever-present hazard to a toxæmic mother and should be a definite argument in favour of induction of labour as soon as one is reasonably sure that the child is a size that makes survival probable.

The child of a mother who has had pre-eclamptic toxæmia from a relatively early period (say, from the thirtieth week) often is handicapped by a low birth weight, considering the duration of the gestation. This is a point that has never received much attention, but in my own experience I have commonly managed cases where the child weighed only four to five pounds even when there

was no doubt that pregnancy had lasted the eight to forty weeks. Often one can demonstrate by recording at intervals the height of the fundus that the uterus is not increasing in size though the pregnancy continues and the foetus is long alive. In these cases large avascular areas may be seen in the placenta or the placenta is remarkably smaller than average size. Both these findings are to be attributed to the toxæmic process. Taken in conjunction with the possibility at any time of intra-uterine death, this failure of the foetus to grow at anything like the normal rate may add weight to the decision to induce labour prematurely.

Once a patient has had toxæmia she is often anxious to want to know the likelihood of its recurrence in future pregnancies. On this point it is not possible to say that there is a greater tendency to recurrence in those women whose blood pressure has failed to reach a normal level again after confinement. It is important to realize that the interval may be several months and even up to two years before the hypertension that developed in the pregnancy finally falls to a stationary level and one should not give an unfavourable prognosis in the case has been followed for this length of time. The albuminuria usually clears much more quickly. Nevertheless, even the absence of raised blood pressure and albuminuria in the interval between pregnancies carries no assurance that toxæmia will not develop on a subsequent occasion. If one accepts the conclusions suggested above as to the failure of toxæmia to produce permanent ill effects on the mother, when the blood pressure one can, however, advise expectant mothers to undertake another pregnancy if they wish to, in the confidence that they will incur no permanent harm to themselves by so doing. Furthermore, it should make all doctors who participate in the management of expectant mothers more cautious of advising their patients that "they must not have another baby," a piece of advice that has been handed out much too glibly in the past on very slender grounds, and always accepted by the patient, surprisingly enough, as an incontrovertible injunction.

If a woman has had toxæmia in one pregnancy and is prepared to embark on another one, the interval should be insisted on between the pregnancies? It has been generally held as a sound principle that ample time should be allowed for recovery from the toxæmia and mothers are cautioned to wait three to five years before attempting another pregnancy. A very important article by Eastman on the outlook for the mother and foetus appeared in the American Journal of Obstetrics and Gynecology in April, 1944, based on the results of a study of many thousands of cases. The authors

thes the significant conclusion that in patients who have had hypertensive toxæmia of pregnancy the likelihood of recurrence becomes progressively greater as the interval between pregnancies becomes longer. In this direction too, therefore, the prospects for the mother who has had toxæmia in pregnancy are being altered by modern studies in the direction of a more favourable prognosis.

A Case of Chronic Cervicitis and Carcinoma of the Cervix

Mrs. G. G. Aet., 42 years. Was admitted September 31, 1946.

Cancer Complaints

- (1) Spotting bleeding—4 years.
- (2) Metrorrhagia—8 months.
- (3) Discharge per vaginam—8 months.

Following coitus in August, 1942, patient first noticed spotting bleeding per vaginam. Was advised by her doctor to have this investigated. Patient not alarmed sufficiently to heed this advice. Spotting continued for three years, usually following intercourse.

In December, 1945, patient had a severe menorrhage for 4 days, during which, many clots of blood were expressed. Pain did not accompany the bleeding. During the succeeding three or four months patient had a recurrence of these menorrhages. Such episodes had no apparent relationship to her menstrual cycle. The patient was vague as to whether they followed trauma such as intercourse. Her periods seemed more prolonged than normal.

In January, 1946, patient developed a muculent discharge. As time passed, the discharge became more profuse, and more mucoid.

In May, 1946, patient finally went to physician, and was treated for some type of therapy. The physician diagnosed uterine fibroids, and chronic endocervicitis. Hysterectomy was advised. At operation, the fallopian tubes were found as well. A sub-total hysterectomy and right salpingo-oophorectomy were performed. Due to technical difficulties, a complete hysterectomy was not done.

Patient had rapid normal post-operative recovery. However, three weeks after operation, patient had a further haemorrhage per vaginam. This recurred again three or four times during the summer of 1946. Her local physician took three biopsies of the cervix. Each confirmed the diagnosis of chronic cervicitis.

The last biopsy taken by the physician was reported August 9th, 1946, by the Manitoba Cancer Clinic and Research Institute, Winnipeg, as follows:

"Specimen: four pieces of pale, firm tissue from cervix, totalling about 2 cm. in diameter.

"Microsection shows a very active chronic endocervicitis. Surface epithelium shows squamous down-growths into glands and the cells are moderately active. If this patient had not had a recent previous biopsy, I would report this as carcinoma in situ, but as it is, I feel that the hyperplasia could be irritative in origin. It would probably be well to do a conization, or something similar, and submit the specimen for further examination."

September, 1946—A linear cauterization of the cervix stopped the discharge for one week, when it returned as profuse as before.

She presented herself to the Gynaecological Outpatient's Department of the Winnipeg General Hospital on October 31st, 1946, with an introductory note from her physician. She was immediately admitted.

Menstrual History

Last normal menstrual period: November, 1945. Menarche, Aet., 15 years. Cycle, 28 days. Duration, 6-7 days. Flow, heavy. No dysmenorrhoea. No intermenstrual discharge.

Marital and Obstetrical History

Married 1922. Aet., 18 years.

Nine full term living children, born at approximately 14 months intervals, between 1923 and 1935. Doctor attended the first birth, and the last four.

Four times the placenta had to be removed manually. The last child was a breech. No other abnormalities of labour noted.

1936—Two miscarriages after two and three months pregnancy. Denies any interference. Not followed by fever. Has not been pregnant since, although no birth control practised.

Past History

1944—Jaundice with clay colored stools. No doctor in attendance.

Family History

Father died of carcinoma of nose. Otherwise negative.

Review of Systems

Complaining of a head cold on admission. Otherwise negative.

Physical Examination

General: A middle aged, obese, dark woman quite unperturbed and happy.

Head and Neck: Evidence of head cold observed. Otherwise negative.

Chest: Blood Pressure — 140/80. Heart, no arrhythmia, no enlargement, no murmurs. Lungs, normal movement, no adventitious sounds.

Abdomen: Well healed lower mid-line scar. Obese. No masses, tenderness, or herniae.

Gynaecological Examination: Breasts, negative. Abdomen, mid-line scar. Pelvic, relaxed and torn outlet, with considerable mucoid discharge. Cervical stump is large (6-7 cm. in diameter), hard and mushy. External os points down and back and very lacerated. Visual, a large eroded cervix, which bleeds easily to the touch. It is not friable. There is a large amount of mucopurulent discharge from the cervix.

Course in Hospital

November 1, 1946—Put on Boracic Douches b.i.d. with Ichtyol and Glycerin tampons against the cervix each night.

November 7, 1946—No improvement. Biopsy taken from two sites on cervix. Considerable bleeding requiring small vaginal packing.

November 8, 1946—Packing removed.

November 12, 1946—Pathological Report—some consideration "Specimen consists of fleecy blood clot and white strands of tissue to 2 mm. Micro: Low grade epidermoid carcinoma."

November 14, 1946—Radium applied to cervix. 1680 mgm. hours.

November 21, 1946—Deep X-ray Therapy applied. No bleeding per vaginam.

December 7, 1946—15 X-ray treatments completed. The patient began to bleed this date; clots passed. Complete bed rest enforced.

December 10, 1946—To operating room. 24 mgm. of radium placed in and around cervix. 24 hours. Total dosage of radium—4280 mgm. hours.

Comment

This case is presented for emphasis of points: (1) Chronic cervicitis and carcinoma of cervix are closely allied. (2) Repeated biopsies must be taken if clinically there is any possibility of carcinoma being present.

PAEDIATRICS

Edited by J. Graf, M.D.

Electrolytes and Fluids in the Treatment of Diarrhea in Infants

Sydney Israels, M.D., F.R.C.P. (C.)

Ever since fluids have been administered intravenously there has been a search for ideal solutions for each condition requiring treatment. In no field in pediatrics does intravenous therapy play such a great part as in the diarrheas of infancy and yet in no field are fluids more mismanaged. Everyone is aware of instances of children dying dehydrated despite intravenous fluids and in other instances of children literally drowned with intravenous fluids. While we do not yet know the ideal fluid or fluids for infantile diarrhea, and they should no doubt vary with the condition of the patient at the moment, there are a few positive guides that may be of value.

Within the past few years the research biochemists have added a great deal to our understanding of intracellular and extracellular fluid and electrolyte. From this understanding of the body constants and their alteration in disease stems the rationale of the fluid therapy used.

Nelson¹ states that in his experience 25 to 50 per cent of children entering hospital will require intravenous therapy. As this covers all hospital admissions it will be apparent that in the diarrhea group the figure will increase to about 90 per cent.

In order to understand better the fluid and electrolyte used in the treatment of diarrhea a

study of the normal tissue concentration of substances and an idea of their alteration in disease is required.

The extracellular fluid and electrolyte balance has been very carefully studied by Gamble² and Butler³ and prior to 1945 attention was not directed to this entity in replacement therapy. No consideration was given to the replacement of intracellular electrolyte in diarrhea.

The extracellular fluids comprising the plasma and interstitial fluid are about 20 per cent of body weight and 25 per cent of this is in the vascular compartment. The main electrolyte components of this fluid are sodium and chloride. The intracellular fluid represents about 50 per cent of the body weight and its chief components are potassium, phosphate and protein. The old concept of electrolyte administration in infantile diarrhea was one which presupposed that the cell membrane allowed no escape of potassium, phosphate from the cell and no sodium to enter the cell. The treatment was based on the loss of sodium from the body in diarrhea, sodium being derived from the secretion into the intestinal tract. As a result of this sodium loss the body was left with an excess of chloride and the patient was in acidosis. This was alleviated by starvation increasing the ketone bodies derived from body fat utilization and from an increase in protein resulting from the reduction in plasma volume due to dehydration.

Attempts were then made to increase the body sodium and bicarbonate content without gaus-

ides in excess. The relative concentrations of the electrolytes in the plasma in the normal diarrheic infant are set out in Chart I and the concentration of the electrolytes in the replacement fluids in Chart II. It will be obvious that ordinary physiological saline will contain too much sodium and increase the acidosis. However, a functioning kidney can handle the excess chloride and so readjust normal equilibrium. A mixture of one part of 1/6 molar sodium lactate or bicarbonate and two parts of sodium chloride provides sodium and chloride at approximately their normal level in the serum. (Chart 2). This would be an ideal repair solution if the body lost only extracellular electrolyte.

However, in 1945, Darrow⁴ & 5 showed that the loss of potassium from the cells in acute diarrheal disease in children may be rapid and massive. As a result of this potassium loss, sodium enters the cell and the serum sodium level does not truly indicate the body's supply of sodium—the remainder being intracellular. He showed that potassium may be lifesaving in treatment if given early in sufficient quantity. Having made this departure, other investigators felt that phosphate also should be added, and Butler⁶ in his treatment recommends its use. There is no direct proof yet of phosphate loss⁷ and so the attention to be used must contain potassium, sodium, chlorides and lactate or bicarbonate. The following regime is the one recommended by Darrow:

1. The potassium solution contains:

Potassium chloride	2 gms.
Sodium chloride	3 gms.
1/6 molar sodium lactate	40 cc.
Water	710 cc.

2. The initial treatment of shock. On admission, severe cases of diarrhea and vomiting are given plasma or whole blood, 10-20 cc. per kilo, and an equal amount of physiological saline to insure a rise in urinary output and so avoid excessively high potassium levels when the potassium solution is given. This blood or plasma is given rapidly in the period of one or two hours.

3. The period of fasting: No food or water is given until the dehydration is overcome, nausea and vomiting ceases, and intestinal function is restored. The potassium solution is given intravenously in the first 8-12 hours at 80-150 cc. per kilo and the remainder of the day's fluids amounting to 150-280 cc. per kilo per 24 hours are made up of 5 per cent glucose in water. Soluble forms of Vitamin B and C are given to aid in the metabolism of the carbohydrate given.

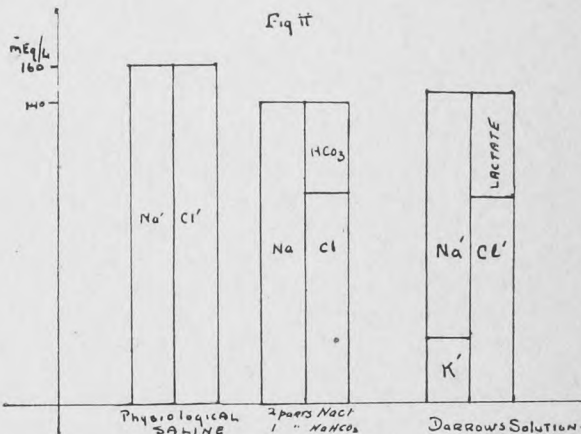
4. The period of feeding: This can usually be begun in 24-48 hours and may consist of milk

containing 2 per cent fat with 5 per cent dextrin-maltose added. This is given in an amount which will supply 10 calories per kilo per 24 hours and is diluted in water to give 150 cc. per kilo per 24 hours. Potassium is added to the milk at 2 gms. per day.



After Gamble, J. L.

m Eq/L = Milli equivalents per litre
= mgm per litre ÷ equivalent weight.
R = sum of Phosphate, Sulphate, organic acids and protein.



Potassium intoxication is rare on this regime, but should be watched for by observing the pulse rate. It can be overcome by the intravenous use of calcium gluconate.

Convulsions occurring during diarrhea have been reported and are used as an argument for the use of calcium in intravenous solutions for diarrhea therapy. There have been no reports of the blood calcium being in the tetany level and Darrow suggests that the cases showing convulsions during treatment may have been due to excessive bicarbonate infusions. (7).

Recently the regime has been modified and it is suggested that the potassium solution be given subcutaneously instead of intravenously. If one wishes to use the intravenous drip with no hypo-

dermoclyses the potassium solution can be used one part diluted with two parts of glucose in water and this approaches the solution advocated by Butler but is lacking in phosphate⁷. Potassium solution can be used orally, one part with two parts of 5 per cent glucose, and this therapy is now advocated by Darrow as soon as the patient is able to retain fluids by mouth.

This is a brief resume of the present trend in treating diarrhea in infants. It will likely undergo some changes, depending on newer knowledge of phosphate loss. It is obvious that the need of electrolyte will vary with the status of the patient when he is seen. The problem will be individual, but the basis of the therapy is already known and should be applied by anyone attempting rational therapy of diarrhea.

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Abstract

Congenital abnormalities in Infants Following Infectious Diseases During Pregnancy, With Special Reference to Rubella: A third Series of Cases, Charles Swan and A. L. Tostevin, Department of Pathology, University of Adelaide, and the Institute of Medical and Veterinary Science, Adelaide, South Australia. The Medical Journal of Australia, Vol. 1:645-659, May 11, 1946.

The Australian investigators in 1941 recognized for the first time the relationship between maternal rubella in pregnancy and congenital anomalies in the foetus. The present work reports 58 pregnancies complicated by infectious diseases and brings the Australian total of cases to 400. The work has been carefully done to establish rubella as the positive diagnosis. From the reports recorded, rubella in the first trimester will invariably lead to some congenital anomaly in the foetus—deaf-mutism, cataract, or heart defect, either alone or in any combination.

The mechanism by which the abnormalities are produced is speculative but it would appear that maternal disease arrests foetal development and will affect mainly those primordia undergoing the most rapid growth rate at the time the disease strikes. Hence, the type of anomaly varies with the time in pregnancy that rubella appears.

Foetal abnormalities are occasionally associated with other infectious diseases complicating the

pregnancy, but their occurrence in these cases is believed by the authors to be fortuitous.

Fifty-eight pregnancies are recorded, 4 of which were complicated by rubella. In 2 rubella occurred within 14 days prior to conception and in the remaining 16 cases pregnancy was complicated by some other infectious disease such as scarlet fever, mumps, herpes and measles.

In 31 of the 40 cases complicated by rubella the disease occurred in the first trimester and in only 1 of these was there no abnormality. In 40 cases only 3 foetuses escaped disease.

The defects recorded were cataracts in 2 cases, deaf-mutism in 27 cases, and cardiac abnormalities in 19 cases. These anomalies may occur alone or two or more may occur together. 7 cases showed microcephaly.

Rubella in the 14 days prior to conception caused no foetal disease. Pregnancies subsequent to the ones associated with rubella and congenital anomalies have not been attended with untoward results.

Thirty-three references.

Sydney Issey

Epidemics of Poliomyelitis in Children's Hospitals. P. Brusa and E. Benvenuto: Policlinico Infantile, October-December, 1945.

The subject of epidemiology of infantile paralysis is a controversial one. In recent years a number of observations have been made and rather premature conclusions have appeared in the daily press. It has frequently been pointed out that the transmission of this disease follows a peculiar pattern of its own. Most of the old books state that it is rare to have several members of a family infected simultaneously. We have, however, learned to recognize cases of poliomyelitis without paralysis, and now we realize that during an epidemic, in addition to each case of paralysis, there are a great number of patients suffering from this disease who present no paralysis.

Two very interesting articles were written by P. Brusa and E. Benvenuto about epidemics of poliomyelitis occurring in children's hospitals, following the admission of known cases. The authors review the literature and cite a number of instances when similar epidemics occurred in hospitals. The most outstanding of these is the epidemic described by Cummings in Los Angeles when 137 members of the hospital staff, including 15 physicians, became ill with poliomyelitis while taking care of cases suffering from this disease.

These instances of epidemics occurring in hospitals naturally strengthen the opinion of those who recommend the strictest isolation of the known case of poliomyelitis in separate infectious hospitals whether or not paralysis is present.

Whether these hospital epidemics favor the views of G. Fanconi and H. Zellweger (Sweiz. 4. Wehschr. 72:1025, September, 1942) remains to be seen. These authors believe that trans-
mission of the disease occurs through fecal infection similar to the transmission of bacillary dysentery. They believe that the carriers of the virus of the infantile paralysis are intestinal bacteria to which the virus is attached in the manner of a bacteriophage. A. E. Casey (Am. J. Dis. Child. 52, March, 1945) finds a definite connection between water and epidemics of poliomyelitis. Studies done in Louisiana support the same view. The virus of poliomyelitis has been found in sewage and streams polluted by sewage.

J. G.

The Uncomplicated Primigravid Breech.

Greg, D.S., M.D., M.R.C.O.G. Journal of Obstetrics and Gynecology of the British Empire, LII, 2; April, 1945.

A series of 60 cases of primigravid breech presentations delivered vaginally is presented. They constitute a consecutive series of cases derived personally. . . . The series, though small, added interest in that it was conducted with a definite plan of campaign and carefully considered technique.

For the purposes of this series I have defined uncomplicated primigravid breech cases as occurring in a woman pregnant of a live baby weighing 5 pounds 8 ounces or over and having either (a) multiple pregnancy, (b) placenta previa, (c) gross prolapse of the umbilical cord, (d) accidental "toxic" haemorrhage, (e) eclampsia or (f) monstrosity.

The disastrous results in vaginally delivered primigravid women have been frequently published in America and Britain. . . . The great volume and authority of this propaganda has had no marked effects in the last 10 years; first there has been a movement towards breech extraction under full anaesthesia and second, there has been increased employment of Caesarean section, especially in private practice.

This paper is written to show that there is another side to the medal. An increasing number of satisfactory series has been reported and reasonable figures are being turned out both in public and private practice.

Method of Delivery

The physician confronted with an uncomplicated primigravid breech case has the choice of 3 methods of delivery:

1. Caesarean section.
2. Breech extraction with full anaesthesia.
3. Spontaneous delivery with minimal manual

(1) Caesarean Section:

It is obvious that there must be a greater place for Caesarean section for a breech presentation than for a vertex presentation in the primigravida. Trial labour is completely eliminated. The borderline case . . . must receive the benefit of elective section. Radiography with pelvimetry can be used to check clinical findings.

Caesarean section should also be elected when the baby is obviously large. The mortality-rate for babies over 8½ pounds rises very steeply.

Elderly primiparity by itself should seldom lead to Caesarean section. In my experience the condition of the lower uterine segment, cervix and upper vaginal tissues are of much greater importance than the perineum. The resistance of the last can largely be eliminated by anaesthesia, stretching and episiotomy. The combination of a thick, tubular, unripe cervix, hypertension and a longish period of sterility, with or without obesity, strongly indicates Caesarean section.

One last group of cases also merits abdominal section—cases with premature rupture of the membranes, a high unfixed breech and a closed elongated cervix without early onset of effective labour. A final verdict on this type of case should be made before the membranes have been ruptured for 24 hours.

(2) Breech Extraction:

Breech extraction can be elected for all breech cases as in the practice of Irving, Goethals and Potter. Excellent results can be obtained by the very experienced operator working with a skilled anaesthetist. Gas and Oxygen are insufficient and the more depressant anaesthetics must be employed in full dosage. It should be remembered that the mother, particularly the exhausted or toxic mother, may not be fit for this ordeal, and the effect on the baby should also be considered. Every operator approaching any breech delivery may be called on, at any time, to make a breech extraction for such indications as arrest, foetal distress, constriction ring or prolapse of the umbilical cord; but that is a very different matter from deliberately planning a dangerous and exciting operation for a series of cases, at least 90% of which could terminate spontaneously or with minimal manual aid.

(3) Spontaneous Delivery With Manual Aid:

The ideal delivery is spontaneous. The majority of breech cases in multiparae can be so delivered. . . . In the majority of multiparous cases the breech delivery is quicker, smoother and less painful than vertex delivery.

The problem, as it appears to me, is how to make conditions in the primigravida approximate to the delivery in multiparae: (a) how to get the uterus into full activity at the proper moment,

(b) how to have the cervix fully dilated and withdrawn, (c) how to reduce the barrier of the vulva and perineum, (d) how to deliver the arms with minimal handling of the baby, and (e) how to reduce trauma in delivering the head. In my own series of 60 cases, I have performed breech extractions 5 times only. Recently I have been able, in most cases, to keep my hands off the baby entirely until the first scapula has appeared. In reaching this limit of non-interference, I have found the greatest assistance from the following technical lines.

(a) Preparation of the patient.

(b) Perineal and pudendal nerve block.

(c) Preparation of vulva and perineum by "ironing-out." This is followed by postero-lateral episiotomy.

(d) The Lovset technique of delivery of arms.

(e) A short rest in the Burns-Marshall position.

(a) Preparation of the Patient:

Defective uterine action is very common among primigravidae. . . . It has to be avoided as far as possible if the breech delivery is to be near-spontaneous. Prophylaxis begins early. She is examined soon after the onset of labour with special attention to the condition of the cervix. If the cervix is fully ripe, thin and well taken up, mild sedation . . . will probably suffice. If the cervix is still a thick tube, sufficient sedation by morphine-scopolamine is indicated to ensure at least one good sleep.

In brief, one tries to bring the patient into the best possible condition when full dilatation is arrived at. To this end the patient is not encouraged to bear down until the perineum is being well bulged. It should not be assumed that because a foot or knee or even a buttock is showing that the cervix is fully dilated.

(b) Perineal and Pudendal Nerve Block:

The perineum being now distended by the advancing breech, the patient is put in the lithotomy position, cleansed and draped. Local anaesthesia is induced. The method is easily learned and can be found described by De Lee (in his *Principles and Practice of Obstetrics*)."

(c) Ironing-out: Episiotomy:

In a few minutes the patient is greatly relieved and the vulva and perineum are ready to be ironed out. This can be done slowly and leisurely as labour is usually temporarily checked . . . and the patient is no longer subject to involuntary bearing down. During this period of calm, the patient should have it explained to her that a special effort is required of her and that she should bear down in a very determined manner when the signal is given. When the breech is about to crown a postero-lateral episiotomy is made. If the episiotomy is well-timed the breech is delivered in a few seconds and immediately

before this event is due I have found it useful to give 3 units of pitocin intramuscularly.

The baby is still not touched and there is no need to disengage the feet of the usual in-breech. The baby's weight comes into play at birth as far as the scapulae without any interference is common.

(d) The Lovset Manoeuvre:

This manoeuvre, described by Lovset, enables one to extract shoulders and arms in all spontaneous deliveries without intra-vaginal manipulation. In the case of a left sacral anterior when birth is well past the umbilicus, the baby is carefully splinted between both hands along the whole length of its visible body, is slightly downwards and towards the mother's right and at the same time rotated slowly in a counter-clockwise direction. In this way, as the baby descends, the posterior shoulder becomes laterally or frankly anterior. When the scapula appears, it is pushed strongly towards the spine with the free index finger of the right hand. Usually the elbow, shoulder and hand (in that order) appear from the vulva. The baby is then drawn towards the mother's left side with slight traction and a counter-rotation is made clockwise so that the baby's retained shoulder, which had become posterior, is restored to its original anterior position. By rotating, the shoulder and arm nearly always appear spontaneously. The baby is then released and allowed to hang by the head for about 10 seconds.

(e) The Burns-Marshall Position:

The Burns-Marshall technique is very effective in flexing the head and by its gentle weight it nearly always draws the head well into the pelvic cavity. . . . There is no better mechanical teaching . . . that hurry has no place in breech delivery; this 20 seconds relief from tension is an apparently nonchalant approach to the final delivery is a most pointed lesson.

In this series I have used the Maurice Smellie-Veit technique for delivery of the head. This manoeuvre I apply only once. If the failure to get immediate easy extraction, the baby's feet are taken over by an assistant and the forceps are applied to the after-coming head.

In the last 2 years I have abandoned general anaesthesia for delivery of the after-coming head. It is quite unnecessary with a good pudendal nerve block.

What to Avoid:

The majority of mistakes arise from haste in matters when a buttock, foot or knee is just showing. The cervix may not be fully dilated and the head withdrawn. Hastening (or assisting) matters when the patient is not ready, leads to the old-fashioned assisted breech delivery. Fingers, tapes or in-

ents are hooked into the anterior groin, later to both groins. Next the buttocks or legs are drawn down against resistance. The patient suffers in panics and struggles. The whole genital canal begins to feel like a recalcitrant sphincter. Rushed anaesthetic is induced, there is more gaining, more spasm, the baby's body becomes flaccid and limp from the shock of handling and action, and is as good as dead before the arms have been secured—one has been caught in the off-way house, in something which is neither a tech extraction under surgical anaesthesia nor

a spontaneous delivery with minimal aid.

(The author finally gives a summary of the Clinical Details of this series, perhaps the most noteworthy of which are: (a) he had only one stillbirth, due to cerebral damage, of a 9-pound foetus which should have been delivered by Caesarean section; it was the second case of his series, (b) 15 of the patients were 30 years of age or more—5 over 35 years—all of which had spontaneous delivery, and (c) 55 of the 60 cases were frank breech).

G. S. Musgrove, V.D.

TUBERCULOSIS

Edited by K. C. Johnston, M.D.

Renal Tuberculosis

K. C. Johnston

In the first eleven months of 1946, there were 13 tuberculosis deaths in the white population of Manitoba. Ten of these had proven renal involvement—an incidence of 5.4%. In the same period 794 white patients were discharged from Sanatoria—fourteen had renal disease—an incidence of 1.8%. In the 113 Indian deaths, three were reported to have tuberculous kidneys. Of the 118 Indians discharged from Sanatoria, two had renal infection. The average incidence of tuberculous kidney from January 1, to November 1946, was 2.1% of all cases.

Tuberculosis of the kidney is a local manifestation of a generalized disease. The primary focus is probably in the lung and will be demonstrable in approximately 75% of the patients. Because a larger proportion of pulmonary "cures" are being discharged from Sanatoria it is reasonable to presume that a greater proportion of cases of active renal tuberculosis will be seen later (5-8 years). They will have survived the initial infection and will be candidates for the subsequent and more slowly developing activation of the kidney lesion. Greater attention has recently been focused on this subject for another reason—the possibility of successful treatment with streptomycin. Because the drug is excreted in the urine, constant high concentration could be maintained. Should it prove to be efficacious in the treatment of tuberculosis, the kidney would be the first organ to show a favourable response.

The mortality rate in renal disease is extremely high. In Wilbolz's series of 316 unoperated cases, 98% were fatal after 10 years. In his 500 nephrectomies for tuberculosis, operative deaths were 5% and the late mortality was 15%. In the face of this, any new therapeutic method which might give promise of success would be well and quickly tested.

In September, 1946, Hinshaw, Feldman and Pfuetze, published the results of streptomycin treatment of 100 tuberculous patients. Included in the series were fourteen cases of renal tuberculosis; six showed no remarkable results; eight were improved, especially symptomatically, but there was a marked tendency to recurrence of previous activity when treatment was discontinued. A total of 360 gms. was given each patient—2 gm. daily in 4-6 doses. No apparent renal damage resulted. Reactions were frequent but not sufficiently severe to withhold the drug from any in whom it might have to be used as a last resort. Unlike the more rapidly growing organisms, the tubercle bacillus is slow to develop drug fastness, and therefore this factor would not be considered responsible for any unfavourable results. The conclusion was that undue optimism is unwarranted. The subject requires further investigation and, for the immediate future, we will have to rely on methods of treatment which have come to us through years of study and investigation.

If the best results are to be obtained from present therapeutic measures, it is extremely important that the diagnosis be made early in the disease. Minimal cortical lesions and small areas of ulceration of the papillae will frequently be arrested if the patient is placed on a strict rest routine. The presenting symptom may be painless haematuria. Tuberculosis should be suspected immediately. Frequency and nocturia indicate bladder infection and the disease in the kidney may be well into the more advanced stage. Pyrexia is also a late symptom. Pyuria may or may not be present.

The most important step is the finding of tubercle bacilli in the urine. If ordinary smears fail to show the organism, cultures should be planted and guinea pig inoculation should be done. If these are positive, a diagnosis of renal tuberculosis can be made. Medlar demonstrated, by

serial sections, the presence of kidney lesions in every case in which he had found tubercle bacilli in the urine. If the bacillus is not at first discovered, the presence of other organisms should not lead to a mistaken diagnosis. Secondary invasion is common and may mask the primary infection.

The genital tract is involved secondarily or concurrently. Lesions will be found in the seminal vesicles, prostate, or epididymis, in approximately 50% of positive kidney cases. Beading of the cord is rare.

Cystoscopy and retrograde pyelography will determine the extent of the disease. Bladder changes may be absent in early disease. In more advanced cases bullous edema or tubercles will occasionally be seen at the mouth of the ureter on the side of the involved kidney. If the pyelogram shows a caseous focus in the medulla communicating with the pelvis, the diagnosis is renal tuberculosis. Marginal foci in the parenchyma adjacent to the pelvis, or cavities in the medulla which do not communicate, may be present in the early stages. Erosion may be evident at the base of the papilla and if progressive will eventually give the calyx a clubbed appearance. Complete obliteration of the calyx is not uncommon in advancing disease.

Nephrectomy will be necessary if there is much evidence of caseation or anatomical change. However, it is not an emergency. The patient should have a period of rest prior to operation. The general health is improved and time is allowed for further investigation and observation. Active pulmonary tuberculosis — generalized disease, or involvement of the opposite kidney will necessitate deferment of the operation. Genital infection is not a contraindication for nephrectomy. In any case an affected epididymis should not be removed in the acute stage, or when it is secondary to severe visceral tuberculosis. In Sanatoria on this Continent it is generally accepted that genital complications respond satisfactorily when treated

conservatively throughout all stages. Removal of the epididymis does not appear to be necessary and often leaves a tuberculous sinus which discharges for years. The epididymitis usually comes quiescent when the kidney disease has been successfully treated.

The technique of nephrectomy for tuberculosis should, in most cases, include removal of the ureter. Thomas, formerly of Minneapolis, divided the ureter at the pelvic brim and introduced carbolic acid into the stump before ligation. It then closed the wound without drainage. In 1890 Dr. A. C. Abbott devised a safe means of removing the entire ureter. In his operation, the kidney is freed of all attachments except the ureter. The ureter is then stripped from the surrounding tissues and the kidney is left lying free in the retroperitoneal space thus created. The original incision is closed without drainage. The second stage of the operation is done through a mid-rectal incision. Keeping outside the peritoneum, the kidney and the ureter are removed intact and the division and ligation is at the uretero-vesical junction. The anterior incision is also closed without drainage. Although other factors are involved, no sinuses have developed in post-nephrectomy cases at St. Boniface Sanatorium since Dr. Abbott introduced this type of operation.

The final essential in obtaining success is the period of Sanatorium care following operation. It may be prolonged for an indefinite period depending on the extent of the initial involvement and the presence of complications during recovery.

Renal tuberculosis is often so insidious that progress is advanced before the disease is recognized. If pus or blood is noted on a routine urinalysis in a patient between the ages of 40 and 50, tuberculosis must be suspected and either proved or disproved. Early diagnosis, adequate investigation and treatment may obviate the need for nephrectomy. It will certainly help prevent the development of the complications which lead to a fatal termination.



CARDIOLOGY

Edited by J. M. McEachern, M.D. and R. E. Beamish, M.D.

Abstracts

New Therapies in Coronary Artery Disease

I. Experiences with Dicumarol (3,3' Methylene-Bis [4-Hydroxy-coumarin]) in the Treatment of Coronary Thrombosis with Myocardial Infarction. *Am. Heart J.* 32: 20-31 (July), 1946. Irving S. Wright, New York.

Experience in the treatment of 76 patients with coronary thrombosis by administration of the antiagulant dicumarol is reported. In addition all patients received conventional treatment including rest, opiates, barbiturates, aminophylline and oxygen according to the indications. The series is composed as follows:

(1) Complicated group (43 cases).

Twenty-eight patients had suffered repeated episodes of multiple thrombi in different areas of the coronary tree or the original thrombus had propagated. Clinical evidence of this consisted of repeated attacks characteristic of the coronary syndrome with precordial pain, fever, leucocytosis, increased sedimentation rate and confirmatory electrocardiographic findings. Twelve patients had repeated embolic phenomena and three others exhibited both the features of repeated occlusions and of multiple emboli. In this group 11 (25%) of the patients died in the episode for which they were treated. Unfortunately there are no accurate mortality statistics for patients in these special categories available, but in the author's experience the anticipated mortality would be in the neighborhood of 60-70%.

(2) Uncomplicated group (33 cases).

These patients suffered from uncomplicated first or second attacks of coronary thrombosis. Four (12%) died as against an anticipated death rate of 20-30%.

The author felt that observation of individual cases was more suggestive than the over-all statistics for the series. Abstracts of four interesting case histories are therefore included. In some of these it appears that the thrombosing and embolic tendencies have been interrupted by the use of dicumarol.

Of the 15 patients that died only 4 were as a direct immediate result of the insult of the thrombosis. The remaining 11 deaths occurred as a result of cardiac failure 2 to 3 weeks after the first acute episode. In the 8 patients on which autopsies were performed, no evidence of hemorrhage or any other effects of dicumarol, which would have produced death, were found.

The author emphasizes that it would be premature to make extensive claims about the merits of dicumarol in the treatment of coronary thrombosis. He points out that adequate controls with which to determine its value are not yet available and will be of little value unless several subdivisions depending on the severity, extension, and complications of each group are studied separately. However, he feels that this study suggests that dicumarol may be of value as a preventive measure against propagation, multiple serial attacks of coronary thrombosis, and embolic phenomena following coronary thrombosis.

Comment

The use of dicumarol in complicated cases of coronary occlusion appears to constitute a valuable adjunct to our therapeutic armamentarium in this disease. Due to the danger of producing serious hemorrhagic manifestations, the drug should be used only when the blood prothrombin time can be checked before each dose is given. Facilities for transfusion and the administration of large quantities of vitamin K should also be available. At the present time there is insufficient evidence to warrant the routine use of dicumarol in uncomplicated coronary thrombosis.

II. Disadvantages of Thiouracil Treatment of Angina Pectoris. *Am. Heart J.* 32: 494-503 (October), 1946. Joseph R. DiPalma and John J. McGovern, Brooklyn.

Numerous reports concerning the beneficial results of the never popular operation of total thyroidectomy for angina pectoris are recalled. The advent of thiouracil, a drug capable of depressing thyroid function, suggested reinvestigation of this problem.

Thiouracil was administered to eight male patients who had been under observation for several years. All of these patients had severe coronary artery disease with varying degrees of anginal pain; seven had arteriosclerotic heart disease and the other had rheumatic heart disease with severe aortic insufficiency and bundle branch block. All of them had normally functioning thyroid glands, except possibly one who had a control B.M.R. of 55 although there was no clinical evidence of hyperthyroidism.

The relationship between the metabolic rate, the degree of precordial pain and the exercise tolerance was followed in each patient. The latter was determined by a single step test carried out under standardized conditions and calculated in foot-pounds to obviate the factor of weight. Thiouracil was generally administered in daily

doses of 0.6 Gm. divided into three 0.2 Gm. portions; but as much as 1.2 Gm. in divided daily doses was given to one hospitalized patient. Patients were observed at weekly intervals for evidence of toxicity.

Four of the patients were treated from 21 to 59 days; two of them developed severe skin rashes necessitating cessation of therapy and the other two developed distressing dyspnoea presumably due to water retention caused by thiouracil. In these four patients no real benefit on either precordial pain or exercise tolerance was observed. The refractoriness of the normal adult thyroid gland to thiouracil was demonstrated in these cases by failure of the drug to depress the B.M.R. significantly.

The remaining four patients were treated for periods over one year and are described in detail. In the case of possibly masked hyperthyroidism (B.M.R. 55) there was a marked diminution in precordial pain, exercise tolerance quadrupled and eventually clinical myxedema was produced. Upon cessation of thiouracil symptoms returned and no real gain was made. In another patient with a control B.M.R. of 25 an excellent result was obtained; it was clearly demonstrated by use of placebo tablets that as the level of metabolism rises, the ability to exercise falls, and vice versa. In the other two patients there was no appreciable benefit and one developed symptoms of coronary occlusion while receiving the drug.

The authors feel that their study clearly demonstrates that depression of the basal metabolic rate diminishes precordial pain, particularly in patients who have an initially elevated metabolism. The beneficial result on the coronary

circulation may be explained on a purely mechanical basis: in the physically and mentally stressed patient less demand is made upon a heart with diminished myocardial reserve.

The disadvantages of thiouracil in patients with normally functioning thyroid glands are listed as follows: toxicity of the drug, necessity for close supervision of the patient over long periods of time, inability to lower metabolism when basal metabolism is low to start with, the tendency toward water retention which is particularly deleterious in cardiac patients, and the necessity for continual therapy in order to maintain results. It is concluded that thiouracil therapy for angina pectoris is not to be recommended as a routine procedure, but that it is indicated when the basal metabolic rate is elevated, and that it can be used as a therapeutic test by those who wish to study patients with angina pectoris for thyroidectomy.

Comment

The authors' conclusion that thiouracil should not be used for treatment of angina pectoris on the basis of the presence of an elevated metabolism appears reasonable. It has long been axiomatic that if angina occurs secondary to hyperthyroidism, the primary condition should be treated, whether by surgery or by medication. Reduction of the patient's activity with consequent relief of anginal symptoms can as a rule be obtained by simple and less drastic methods than the production of hypothyroidism or myxedema by either surgical or medical means. The management of angina pectoris has recently been reviewed in this journal (McEachern, J. M.: *Man. Med. Review* 26: 34 (June), 1946.)



Hospital Clinical Reports

Deer Lodge Hospital

Pilonidal Cysts and Sinuses

Dr. J. H. Moir

The origin of these interesting structures is uncertain. They are much commoner than was formerly thought, and when present often cause discomfort and disability. Their treatment is difficult.

Pilonidal cysts and sinuses are developmental anomalies, but their precise origin is unsettled. Jourd'heaux and Herrmann consider them neurogenic in origin, remnants of the medullary canal between coccyx and skin. Stone and Fox believe they are ectodermal, remnants of an embryonic structure analogous to the uropygial or "preen" gland in birds. Other workers suggest that they may have a double origin, the cyst neurogenic and the sinus ectodermal.

Any lesion in or near the mid-line posterior to sacrum or coccyx is pilonidal in origin unless proven otherwise. A sinus is often found which may show protruding hairs and commonly is inflamed and discharging; or a tender swelling may be present in the mid-line, with or without an overlying dimple or a minute skin opening. Repeated abscess formation causes multiple sinuses anywhere in the region. The differential diagnosis is mainly from fistula-in-ano.

Symptoms occur when infection supervenes. Trauma is thought to predispose to a flare-up; hence the term "Jeep Disease." Recurring abscesses and sinuses which discharge intermittently or chronically are often seen. A tender lump may be the only finding. The condition is three times as common in men as in women, and symptoms usually appear at the age of 18 to 25 years.

Before undertaking treatment it is most important to secure the patient's co-operation and to explain the necessity for lengthy pre and post-operative care. A proportion of failures must be expected even with the most careful treatment.

Poor results following surgical treatment are usually due to the following factors: (1) Incomplete removal of pilonidal tissue. (2) Failure to eliminate dead space. (3) Closure under tension. (4) Incomplete hemostasis. (5) The blood supply of the posterior sacro-coccygeal ligaments is scant. (6) The surrounding tissue is inevitably infected. (7) The area is "dirty," close to rectum and anus.

In this hospital no set treatment procedure is followed; each individual case must be planned according to the size and extent of the pilonidal tract and the amount of infection present. Relatively

uninfected cysts and small sinuses are excised en bloc with primary closure. Where more infection is present preliminary treatment with fomentos or hot sitz baths and chemotherapy is followed by excision. Here, and in cases which have recurred, excision may be followed by either primary closure, delayed suture, or open packing, depending on circumstances. Acute abscesses are incised and drained, or even if necessary unroofed and packed open. Excision, if necessary, may then be done when the infection has subsided. Sinuses with large communicating lateral extensions are excised; the central wound is usually closed and the lateral extensions packed open in an effort to prevent further communications from forming.

Healing is always difficult to obtain. Union of fatty areolar tissue with the comparatively avascular posterior ligaments of the sacrum and coccyx is uncertain. Destruction of the fibrous bands which normally bind the skin down to the bones allows wide gaping which is hard to control. Sitting or stooping put tension on the incision. A vertical, elliptical excision is almost always done. The edges are drawn together by deep tension sutures through the posterior sacral and coccygeal ligaments and tied over buttons laterally, or over a gauze roll to provide pressure on the suture line. Excessive tension can be relieved by vertical incisions placed well laterally (Lahey) or by rotating in a large flap of skin and subcutaneous tissue from one or both buttocks.

From January, 1943, through October, 1946, 101 cases of pilonidal cyst and sinus have been operated upon at Deer Lodge Hospital. Of the 72 cases for which records are available 14% had had previous excision done elsewhere; 11% had more than one operation in this hospital (including preliminary incision and drainage of abscesses). The failures in the group as a whole were 20%, which compares favorably with other reported series.

Dr. C. W. Clark, opening the discussion, said that these lesions can be thought of as a type of inclusion dermoid. Pilonidal lesions were a cause of much wasted time in the army. Their incidence was higher in this war due to the trauma of sitting in vehicles. 20 to 30% recur after primary closure; this is seldom due to incomplete excision, but usually results from infection or accumulation of serum in the wound. The use of sulpha powder in the wound should be avoided as it produces serum. Treatment by open packing cuts down the recurrences by about half, but takes much longer. In Colp's method of primary closure the sutures are tied over buttons and deep sutures are tied

over a roll of gauze soaked in Tr. Benzoini Co. which dries and acts as a splint for the incision.

Doctors John Gunn, D. Bruser and C. E. Corrigan also took part in the discussion.

Urinary Infections

Dr. David Swartz

A classification of urinary infections was presented, based first on the anatomic location of the infection and secondly on the many possible types of organism responsible. Particular emphasis was placed on the difficulty of treating infections caused by the urea-splitting organisms. Methods of investigation were discussed around the three key urinary findings; pyuria, bacteruria and hematuria.

The treatment of urinary infections can only be satisfactory after thorough investigation. The principles of treatment were gone into in detail. (1) **Rest**, meaning physiological rest, not bed rest which slows the urinary flow and causes pooling of urine in dependant areas. (2) **Nutrition**. (3) **Fluids**. The intake should be at least 2500 to 3000 c.c. per 24 hours, given if necessary by vein. In maintaining a normal acid-base balance while forcing fluids the pH of the urine can be used as a guide, with the borderline at pH 6.0. If the urine becomes more acid than this 5% glucose in water should be given rather than glucose in saline. (4) **Intrinsic factors** that maintain infection should be corrected (e.g. obstruction, tumors, calculi). (5) **Extrinsic factors** contributing to the infection should be cleared up, such as foci of infection in the cervix or elsewhere, or intestinal intoxication. (6) **Drug therapy**. No one drug can be used successfully in the treatment of all urinary infections. The various drugs were discussed in some detail with their indications and contra-indications. Penicillin has produced few striking results though it is best in the coccal infections. An interesting point is that in certain resistant staphylococcal infections neosarsphenamine has proven very effective.

Other therapeutic measures discussed by Dr. Swartz were diet, pelvic and bladder lavage, bladder-neck dilatation and prostatic massage. He emphasized that any effective treatment must be continued longer than appears necessary, in order to avoid recurrence. Repeated acute attacks result in chronic infection which is a life-time disability.

Infectious Mononucleosis

Dr. J. G. Hunter

The history, incidence and etiology of the disease were reviewed, and this was followed by a more detailed discussion of its very diverse clinical manifestations and the differential diagnosis.

The diagnosis of infectious mononucleosis depends upon (1) the clinical picture, (2) the characteristic blood changes, and (3) the heterophilic antibody reaction. Cases have been confused with diphtheria, acute tonsillitis, German measles, typhoid fever, undulant fever and acute leukemia. Three broad clinical types are seen: (1) the glandular type, most common in children; (2) the anginous type, often confused with diphtheria; and (3) the febrile type, sometimes with a rash. In a series of cases of all types the symptoms and signs occur as follows: Fever 98%; headache 31%, malaise 34%, sore throat 31%, chills 28%, throat involvement 68%, lymph node enlargement 74%, splenomegaly 72%, hepatomegaly 27%, rash 13%, jaundice 5%.

Complications are uncommon, the most frequent being a secondary infection of the throat. Meningismus, purpura and anaemia have been reported. Rupture of the spleen is a rare but serious complication and rough or frequent palpation unwise. Hepatic damage is reported to occur in all cases. With this in mind a diet low in fat and high in methionine and Vitamin B has been tried and has apparently been beneficial.

The course of the disease is usually two to three months from onset to complete recovery, though the abnormal blood picture and enlargement of spleen and lymph nodes may persist for years.

Dr. Paul Green discussed the laboratory findings in infectious mononucleosis.

Essentially, the diagnosis depends upon characteristic changes in the blood smear and this is the most constant single sign. At the time of the onset of symptoms there is only a moderate leukocytosis with increased polymorphonuclears and a moderate shift to the left. Within the first four days the lymphocytes increase and abnormal mononuclears appear. The total count does not usually go above 20,000 but may be more. Dr. Green has proven to the satisfaction of most hematologists that the abnormal cells are lymphocytes. A characteristic feature of the smear in this disease is the diversity in appearance of the individual mononuclears. One almost imagines that if a needle could be given to each individual cell that it could be recognized again. Superimposed pyogenic infection may so alter the blood picture as to obscure the diagnosis.

As a rule the hemoglobin is normal. Rarely cases have been reported which show a progressive anaemia.

There has been much argument about whether or not the bone marrow shows characteristic changes. It is thought here that definite changes have been observed in some cases, but not marked enough to be confused with leukemia.

The heterophile antibody reaction is based on the discovery by Paul and Bunnell of an antibody appearing in this disease which agglutinates cells containing the heterophile antigen (sheep cells). The antibody is present only if the typical mononuclears are found in the blood, so the smear is diagnostic as the test. The test is positive in 90% of the cases, becoming positive after about a week, and may remain positive for two or four months. Positive reactions have been observed in some cases of monocytic and lymphatic leukemia and *B. coli* infection.

The Wassermann reaction is positive in 5 to 7% of cases, usually those that have skin rashes. It remains positive for a short time only. There is no relation between a positive W.R. and a positive H.A.R., so the latter should not be relied upon to rule out infectious mononucleosis in the presence of a positive W.R.

Dr. John Kilgour remarked that in 9/10 of the cases this disease offers no diagnostic problem. It will likely soon be proven a virus infection. Some cases are strikingly like infectious hepatitis. In the icteric stage infectious hepatitis may show normal blood cells not unlike those of infectious mononucleosis. This may prove to be a characteristic of certain virus infections.

D. B. S.

Winnipeg General Hospital

Reported by O. J. White, M.D.

Some Observations on the Surgery of Congenital Heart Disease

Dr. Harry Medovy

Dr. Medovy began his discussion with a brief review of the history of the surgery of congenital cardiovascular defects. The following dates were noted:

1937: An edition of text-book of heart disease by Paul White contained a statement to the effect that there was little to be done for cases of congenital heart disease except to keep them within the limits of their cardiac reserve.

1939: Gross published his first account of ligation of patent ductus arteriosus.

1945: Gross described an operation for the relief of coarctation of the aorta and Blalock described a successful operation for relief of symptoms in cases of tetralogy of Fallot.

Dr. Medovy discussed briefly a case of tetralogy of Fallot which he had first seen in infancy and which recently at the age of 14 consulted Dr. Taussig at Johns Hopkins. This patient was referred for surgery to Dr. Blalock and was treated successfully, and when last seen showed minimal cyanosis and was free of dyspnoea even on

ordinary activity. This was the 257th case operated on by Dr. Blalock with high incidence of satisfactory results.

The operation consists essentially of anastomosis of one of the great branches of the aortic arch to a pulmonary artery. If a left aortic arch is present the anastomosis is done on the right side between the innominate artery and the right pulmonary artery; while in the presence of a right aortic arch, which occurs in approximately 25% of these cases, the anastomosis is completed between the left subclavian or left common carotid artery and the left pulmonary artery.

The optimum age for operation is from 2 to 6 years; in this age group mortality has been approximately 20%. Until recently the mortality in higher age groups has been much higher than this but it is now improving. The chief causes of mortality are: (1) The presence of a small pulmonary artery, necessitating end to end anastomosis with the possibility of subsequent pulmonary oedema. (2) When the carotid artery is used in anastomosis cerebral thrombosis may follow.

Dr. Medovy emphasized the importance of proper screening of all cases of congenital heart disease with a view to selecting those suitable for surgical treatment. He gave his opinion that facilities for this work should be established in Winnipeg in such a way that all medical units could make use of them. He stated that surgery of the patent ductus arteriosus was quite feasible at this centre and noted that one case has already been successfully completed by Dr. M. B. Perrin. He outlined a tentative group to include roentgenologist, physiologist, cardiologist and two or more surgeons.

Dr. H. V. Rice: Are anti-coagulants used in the preparation of these cases?

Dr. Medovy: As far as I know dicoumarol is used in the routine pre-operative preparation of these patients.

Dr. Rorke: What about subacute bacterial endocarditis?

Dr. Medovy: The work is at too early a stage to judge this possibility, but since the Blalock operation constructs in effect a patent ductus arteriosus some cases of subacute bacterial endocarditis might be expected. Dr. Taussig feels that the incidence of subacute bacterial endocarditis in cases of congenital heart disease has been exaggerated in the past and that with current methods of chemotherapy it no longer constitutes such a large problem.

Dr. F. G. McGuinness noted that suggestions for diagnostic service for congenital heart disease would be taken up for consideration by the Honourary Attending Staff.

Chorionepithelioma—A Case Report

By Dr. Brian D. Best

The case was presented of a woman, aged 32, para 2 gravida 4, who in January, 1946, had an abortion followed by irregular uterine haemorrhage.

May, 1946: Uterine haemorrhage continued and eventually a curettage was done, with temporary improvement.

July, 1946: Uterine bleeding had recurred and a second curettage was done, again with temporary relief.

September, 1946: Bleeding had again recurred. Haemoglobin at this time was 60%. With consultation a third curettage was done and at this time the tissue removed was sent for pathological examination; it was reported as decidual tissue without evidence of malignancy.

November 15, 1946: Following a severe uterine haemorrhage, the patient was sent to the Winnipeg General Hospital and was first seen by Dr. Best.

At this time the uterus was enlarged to twice the normal size and was boggy, with a slightly dilated cervix. Physical examination was otherwise negative.

A Friedman test done at this time was positive. X-ray of the chest was negative.

The differential diagnosis considered was: (1) A new pregnancy begun since abortion in January, 1946. (2) Retained products of conception. (3) Chorionepithelioma.

November 20, 1946: A laparotomy was performed and a hysterotomy was done first; the uterus was found to contain masses of dark friable tissue. A pan hysterectomy was completed, and the diagnosis of chorionepithelioma was confirmed by microscopic examination.

Dr. Best: This is one of the most fatal types of neoplasm. It is of foetal origin and the commonest sites of metastases are lung, brain and vagina. The majority are fatal within one year but there is a reasonably good chance of survival following early surgery. Brain metastases are the most fatal; those in the lung sometimes disappear spontaneously, while those in the vagina may be treated successfully by radium. In cases where there is some doubt about the diagnosis a hysterotomy is considered useful to eliminate the possibility of a normal pregnancy. The post-operative care must include Friedman tests, preferably at one month, six months and one year.

Dr. F. G. McGuinness: 50% of these tumors follow hydatidiform moles. If products of conception were always examined carefully, including tissue section, at least 50% of chorionepitheliomas could be diagnosed early.

Dr. Frank Mathewson: There has been at least one case of chorionepithelioma of the testis in this hospital.

A Case of Craniopharyngioma

Dr. Charles Hunter

Dr. I. M. Thompson

Dr. A. E. Child

Dr. D. Nicholson

Prof. A. T. Cameron

Mrs. F. H. B. Aged 24.

(As Dr. Hunter was ill, the following summary was given by Dr. R. M. Chadwick).

1931-1935 (patient's age 9-13): Sudden attacks of weakness in right leg, causing her to fall to ground. She had 6 in all.

June, 1934 (age 12): Severe bilateral temporal headaches, lasting ½ to 1 day with occasional vomiting. Had to miss few days at school.

December, 1934: Three or four attacks of numbness in right lower face and right hand, lasting 10 minutes.

March, 1935: Eyesight poor — mostly in right eye. Physical Examination: Height 4 feet 10 inches, weight 100 pounds. Profuse adult hair distributed normally. Breasts fully developed. Skull negative. Heart normal. Lungs, abdomen and urine negative. Neurological Examination: Bilateral optic neuritis; right xx with contraction of right lower nasal quadrant; similar, but less marked on left. Right knee jerk more active. Rest of neurological examination normal. Diagnosis: Cerebral tumor. No investigation.

July, 1935: Headaches less but present during attacks. No vomiting. No spells of numbness. Eyesight improved and optic neuritis not so marked. Vision improved from 20/70—20/30 right. X-ray of Skull: "There is a dense irregular area of calcification lying immediately above the sella turcica. There is also erosion of the tips of the posterior clinoid processes. There is no definite evidence of increased intracranial pressure. There is no definite calcification in a suprasellar tumor and is likely a craniopharyngioma." Physical Examination: Right knee and ankle jerk missing. Babinski on right. No treatment and not seen until—

July, 1940 (age 18): No headache, no vomiting. Vision normal by 1937. Married in 1939. Never menstruated. Physical Examination: Height 4 feet 11 inches. Weight 106 pounds. Looked young for age. Thyroid slightly enlarged. Hair distributed normally and amount normal. External genitalia small. Uterus tiny. Fundi normal, except for very narrow clear-cut discs. X-ray of Skull: "The supra-sellar calcified area previously reported has increased in size and density since last examination."

July, 1942 (aged 20): No complaints. Height 4 feet 11 inches. Plump, of childish type. Genitalia infantile. Hair thin and fine, distributed

Normal. Left knee and ankle jerk absent, Plantars doubtful. Vision normal; fundi same. Gastric analysis normal. X-ray of Skull: The supra-sellar calcified area previously reported has increased in size since the last examination. The calcium deposit apparently is increasing backwards and upwards."

December, 1943: Complaints of headache, nausea, and dragging pain in left lower chest posteriorly. Examination: No change.

October, 1946 (aged 24): Height 4 feet 11 inches. Weight 126 pounds. Skin cold and feels cold all the time. Appetite better than before. Noticed right leg a little weak on occasions, but does not fall.

November, 1946: Physical examination: Right knee jerk xxx, left knee jerk x. Ankles both present. Right Plantar. Left Plantar. Right abdominals weak. Upper extremities normal. Hair profuse and fine. Hands normal. Small pituitary. Inclined to be obese—of no special type.

Dr. Childe: Suprasellar calcification in childhood is almost always due to craniopharyngioma. However, only 85% of all these tumors show calcification and the calcified area may be only a small part of the entire tumor.

Dr. Nicholson: Since craniopharyngiomas arise from Rathke's pouch, they may contain any tissue which arises from the buccal cavity. Three main types may be noted: (1) Mucoïd epithelial cyst, which may become malignant. (2) Adamantinoma. (3) Simple epithelial cyst. Cholesteatomata may form from desquamation products within these epithelial cysts. Craniopharyngiomas form approximately 2% of all intracranial neoplasms and the majority are of enamel organ origin.

(Dr. Nicholson presented two brief case histories with gross and microscopic specimens, noting coincidence of injury and tumor formation in each case and emphasizing that there was no cause and effect relationship between injury and tumor.)

Prof. I. M. Thompson: The pituitary body arises from two separate sources, the posterior lobe arising from the floor of the neural tube, while the anterior lobe arises from Rathke's pouch—the outpouching of the roof of the stomodoeum. Several types of anomalous development may occur: (1) "Pharyngeal hypophysis," that is a portion of Rathke's pouch which failed to separate from the pharyngeal roof and developed characteristics of the adult anterior lobe. This is considered to be normal by some investigators. (2) The stalk of Rathke's pouch may remain partly open and as a result anterior lobe tissue may be found in the sphenoid bone. (3) Aberrant intracranial sites of hypophyseal tissue have been observed and it is from tissue in one of these sites that craniopharyngiomas are thought to arise. It is interesting to

note that Rathke's pouch is thought to represent the original vertebrate mouth, and in this regard the presence of enamel organ elements is worthy of note.

Prof. A. T. Cameron: Endocrinologists do not consider craniopharyngiomas as pituitary in type. The interesting features of this case were: (1) Dwarfism. This was not marked, and investigation of the stature of parents and other members of the family might be of interest. (2) Amenorrhoea. This was probably the result of pressure on the pituitary gland during adolescence. (3) Obesity. Obesity is not now regarded as a result of hypopituitarism. One puzzle in this case is the improvement in sight.

Congenital Cystic Lungs in the Newborn A Case Report With Autopsy Findings

Dr. K. R. Trueman. Dr. D. W. Penner

Dr. Trueman gave a brief case history of an infant of several days, brought to the Winnipeg General Hospital from Fort William with a diagnosis of diaphragmatic hernia with small bowel in the chest cavity. This diagnosis was sustained by several staff members, and a laparotomy was done which revealed an intact diaphragm. Aspiration of the left chest contents was attempted, and on one occasion air under positive pressure was obtained. The infant died several hours post-operatively. At post mortem a left congenital cystic lung was found.

Dr. Trueman: 200 cases of congenital cystic lung have been reported. This condition is due to the failure of development of lung tissue, with the formation of cysts of varying size. Fistulous tracts may exist between the cysts and the bronchi. Some cysts contain air, others contain fluid. The differential diagnosis considered in this case was: (1) Spontaneous pneumothorax; this was excluded by X-ray. (2) Diaphragmatic hernia with the presence of small bowel in the chest cavity. This could have been excluded by the use of X-ray and barium meal, but it was felt that the condition of the infant did not permit the use of barium. (3) Congenital cystic lung.

Dr. Penner presented pictures of the left lung removed at autopsy. The upper lobe was atelectatic, while the lower showed multiple congenital cysts. Dr. Penner noted that these cysts are actually greatly dilated bronchioles.

Wash-Tub Burns in Children — 2 Cases

Dr. J. W. R. Rennie. Dr. George Waugh

Dr. George Waugh presented the histories of two recent patients from the surgical department of the Winnipeg General Hospital. Each of these had received burns by falling into a tub of scald-

ing water; the burn in each case was estimated at approximately 48%. One occurred in a female child of 1½ years, admitted approximately 2½ hours after the burn; the other occurred in a male child of 3 years who was admitted approximately 15 minutes after the burn. Dr. Waugh outlined the treatment, which was similar in the two cases, as follows:

- (1) Debridement, when necessary, under general anaesthesia.
- (2) Initial dressing of (a) fine mesh gauze impregnated with penicillin ointment.
- (b) A spongy dressing provided by several layers of fluffed laparotomy sponges.
- (c) Gauze bandage snugly applied over the sponges.
- (d) Elasto-crepe bandage.
- (3) Intravenous fluids, established by cut-down if necessary.

Intravenous fluids included saline and distilled water, plasma and blood. Oral fluids were begun as early as possible in as large amounts as possible. In one of the two cases acidosis appeared to be developing, and 1/6 molar lactate solution was used. Fluid balance was estimated by haemoglobin readings done twice daily. Total fluid intake per day in the child of 1½ years varied from 1500 to 3000 ccs., while in the child of 3 years totals of 4000 ccs. were reached.

The initial dressings were kept in place for periods up to 10 days, and it was felt that they could have been left up to 2 weeks if necessary.

Dr. Waugh noted the importance of some type of surface area chart in estimating the extent of burns.

Intravenous fluids were discontinued in each case as soon as oral intake was considered satisfactory. The clinical course of each case was uneventful, the hospital time for the female child being 4½ weeks and for the male child 6 weeks.

Dr. Rennie noted the following points:

- (1) The importance of surface area charts in estimation of burned areas.
- (2) The large amounts of fluids which children can absorb in cases of this type, taking as a basis a normal fluid intake of at least 2000 ccs. a day in a child of 9 months.
- (3) The importance of pressure dressing in limiting the loss of plasma into the tissues. It was noted here that pressure dressings have little if any effect in reducing the loss of plasma from the burned surface.
- (4) The presence of varying degrees of secondary shock as a result of—(a) pain, (b) plasma loss, and (c) blood loss, most marked in deep second degree and in third degree burns.

Intravenous blood is of great importance in reducing hypoproteinaemia and secondary anaemia which always follow burns of this type.

(5) Estimation of the degree of a burn is almost impossible on first examination and must be until the first dressing, which is done at about 10 days. At this time the degree of the burn is easily estimated and the area is which grafting necessary determined.

Hospital Social Service

Isabel McDiarmid, R.N.

The discussion was introduced by Dr. Wita Grant, who is associated with the Psychiatric Department and with the Pediatric Out-patient Clinic. He stressed the importance of far background in patients from each of these departments, and in particular the importance of the work carried on by the Social Service Department of the Winnipeg General Hospital in improving this factor. He then presented the history of a typical family who have benefited greatly from such service. Dr. Grant then introduced Miss Isabel McDiarmid, who has been associated with the Department of Social Service for 25 years.

Miss McDiarmid sketched briefly the history of social service in North America. Service of this type was first instituted in 1903 by Sir William Osler, and in 1905 the first formal department of social service was begun at Massachusetts General Hospital. In 1910 the Winnipeg General Hospital established the first social service centre in Canada. This department was initially under supervision of Miss Ida Bradshaw, who later came the wife of Dr. Stewart, of Ninette. Miss McDiarmid outlined briefly the work of the Social Service Department. She noted income from the following sources: (1) The Woman's Hospital Aid, who have been associated with the department since its beginning. (2) The National Council of Jewish Women. (3) The Council of Social Agencies. Fourthly, some patients are able to pay at least part of the money expended for them. The liaison was stressed with the Department of Public Welfare of the City of Winnipeg, with the Children's Hospital Aid, and with the Family Bureau.

The work of this department with patients admitted to the wards of the hospital was noted, and in this regard Miss McDiarmid paid a special tribute to the work of Miss Stollars, who acts as interpreter for the department, has completed almost 25 years of service.

Orthoptic Clinic Re-Opened

After being closed for several months, the Children's Hospital has re-opened its Orthoptic Clinic with Miss Margaret Crush, late of R.C.A.F., in charge, assisted by Miss June Aitken, of Edinburgh, Scotland.

St. Boniface Hospital

An Anaesthetic Estimation of Some Pre-Operative Risks

Dr. Rene Letienne

Anaesthetic estimation is the consideration by the anaesthetist of the risk involved in the patient about to be submitted to the combined effects of surgical trauma and anaesthetic intoxication and ventilation.

The practice of consulting with everybody except the anaesthetist about the choice of anaesthetic to be used was deprecated, for, as a safety factor, it is of the greatest importance to be concerned. It is only reasonable then that opinions should be obtained from all contributing to the safety of the patient. The anaesthetist in particular gains experience in evaluating risks pre-operative, intra-operative and post-operative observations of patients. The patient's likes, the surgeon's preferences from the statistical safety of a certain anaesthetic is not enough in choosing an anaesthetic, but of most importance is the skill of the anaesthetist with that certain anaesthetic and the skill of the surgeon, the nature, duration and the severity of the operation, and the age and health of the patient.

Classification of Risks

1. Normal risk group—these are usually no problem. Athletes, plethorics, and alcoholics usually have more resistance and redheads are surprising!

2. Sub-normal risks—these include patients at the ends of the age scale, anaemics, cardiacs, chest cases, etc.

(a) Age is a risk only at the extremities of life. A plea was made for more and better pre-anaesthetic medication for children and aged respectively. The safest anaesthetic for infants and children is ether. For adults, anaesthetics must not disturb any system specifically, and an anaesthetic is considered safe only if it produces muscular relaxation before the cardiac output and the minute-volume respirations are depressed. Regional or spinal methods are preferred. Combined if necessary with the smallest amounts of halothane anaesthesia.

(b) Obese patients are nearly always poor risks. It is difficult to get extreme relaxation. Their cardiac reserve is small and they are subject to post-operative pulmonary complications.

(c) Patients with dehydration and malnutrition are always poor risks.

(d) Secondary anemia from any cause is also a hazard because of inadequate tissue oxidation, because of sudden drops of blood pressure, etc.

(e) Pulmonary conditions, either acute including upper respiratory disease, or chronic, are self-evident risks. Patients with asthma require non-irritant anaesthesia.

(f) Heart disease and hypertension—the risk depends here on the amount of decompensation and renal complication. Heart disease per se is not a contra-indication to surgery.

(g) Renal disease—here it is important to avoid shock.

The site of the operation and the agent used are also important in evaluating risks. And this was discussed.

Local and regional anaesthesia were stressed regarding their safety.

The discussion was led by Dr. J. D. Adamson, who agreed that the anaesthetists are the best judges of estimating the type of anaesthetic to be used. Pre-operative plates on all surgical patients was recommended. Mention was also made that head colds are more important than grosser chest conditions in producing complications.

Dr. A. C. Sinclair praised local anaesthesia which is almost exclusively used in all chest operations and most orthopedic operations in St. Vital Sanatorium. Dr. D. S. McEwen also thought that local anaesthesia was safer and he did not think the speaker had stressed it sufficiently. Also vascular diseases should have been mentioned more, especially chronic phlebitis which can lead to post-operative emboli.

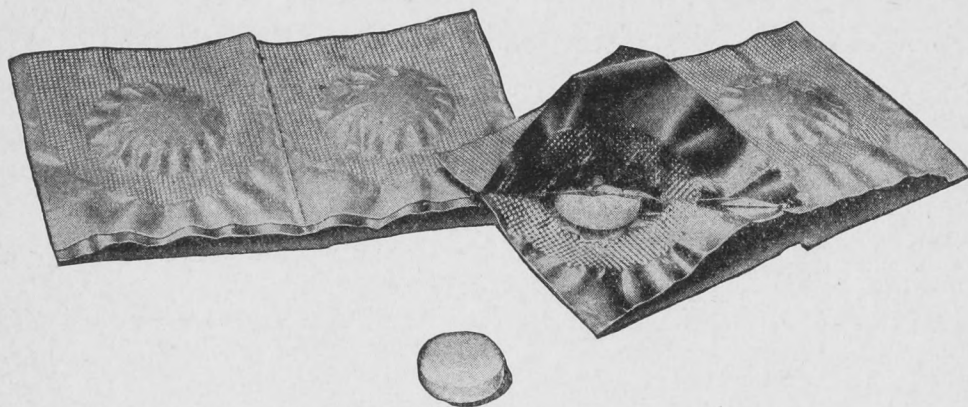
Dr. R. O. Burrell mentioned the great resistance of newborns and Dr. Letienne countered that some men think that newborns do not require any anaesthetic at all.

Dr. L. Coke mentioned that non-fibrillating mitral-stenotics could have fibrillation initiated by Cyclopropane. Also, quinidine should not be given to a patient who might fibrillate.

The question was asked regarding the most suitable anaesthetic for patients with obstruction of the bowel for deflating the bowel. Dr. Letienne replied that there was not any anaesthetic that would do so.

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1. Bunn, P. A.: in *Conferences on Therapy*: New York State J. Med. 46:527 (March 1) 1946.
2. György, P.; Evans, K. W.; Rose, E. K.; Perlingiero, J. G., and Elias, W. F.: *Pennsylvania M. J.* 49:409 (Jan.) 1946.

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Editorial

J. C. Hossack, M.D., C.M. (Man.), Editor

Social Service

I did not hear what Dr. Grant and Miss McJannet had to say about Social Service but I have, for a long time, felt that its importance was not sufficiently recognized and that its workers were not sufficiently encouraged or appreciated. Social Service has always been important but ever more so than today and in the future it will, I am sure, play a major role in the handling of the sick.

Not the least interesting thing about the history of medicine is its revelation of the fact that the trends which we think modern are, in reality, very old. Twenty-four hundred years ago there flourished in Alexandria two men who, in large measure, laid the foundation upon which we are still building. Both were professors in the great university founded by Ptolemy Soter. Of these two, Herophilus, was trained at Cos in the tradition of Hippocrates. The other, Erasistratus, had studied at Cnidus. Now the difference between the two schools was this. The Cosans stressed the importance of the patient as an individual. His person, his constitution, his environment were the chief matters of study. In Cnidus, on the other hand, disease was regarded as a local process and attention was focused upon organs. Have we not the same thing today? Are we not divided into "organologists," or specialists, and "totalists" with organology in a higher state of development than is holism?

Hippocrates and Herophilus knew less about organs than any of us but they knew, what we sometimes forget, that the organ cannot adequately be studied apart from the patient; and they knew, moreover, what we do not always remember, that the patient cannot adequately be studied apart from his family. What the organ is in the patient so is the patient in his family. Complete understanding of a case, then, requires a knowledge of the families—of childhood and of marriage—of which the patient is a part. This information, whenever it has been brought to bear upon the general problem, has invariably been of supreme value. But it can be obtained completely and in useful form only by trained social workers. Their work is of greatest value in patients of the dispensary class whose illnesses are greatly modified by social and economic conditions. To such patients health is especially necessary for they live from hand to mouth and their earnings are never large. Moreover, this group is a very large one in every community and their well being has a corresponding effect upon the people as a whole.

In the past the social worker has been regarded by some as an interloper and by many as a rather useless person. Today she is being slowly but more widely appreciated. Tomorrow she will come into her own and we shall wonder, after her acceptance, why that acceptance was so long delayed.

Winnipeg Medical Society

At the December meeting the following items of New Business were considered. I am giving it in the words handed to me.

"New Business: Dr. Ross Mitchell gave a preliminary report on a plan for the establishing of a trust fund to serve as a Foundation for the Winnipeg Medical Society. In the past there has never been a liquid fund for the Society to draw on for any unusual or extraordinary expenses. It was felt that such a fund amounting to probably five or six thousand dollars contributed by the medical men themselves, would be of very great advantage to the Society. It was proposed that a committee composed of five members, one to be replaced each year after the first year, should administer the Fund. This fund could be raised by direct donations from members, or by sums left in their wills. Such matters as paying expenses for visiting speakers, Gordon Bell Memorial Lecture, Library Fund, could be taken care of by this

Foundation on application by the Council of the Society. It could also serve as a benevolent fund in cases where members of the profession, their widows or children, were in urgent need of help. This is only a preliminary set-up, but Dr. Mitchell with the assistance of an advisory committee will bring in a detailed report next meeting."

The plan of having such a fund for such purposes is excellent and there is no objection to the suggestion that the fund be augmented by testamentary bequests but, as I see it, there is an immediate way by which the money can be obtained. We have, as Members of the C.P. and S. some \$50,000 idle dollars. It does not seem wise to ask people for money when we have so much already. Inasmuch as the Members of the Society are all Members of the College, and inasmuch as the Society forms almost if not quite 50% of the Collegians therefore be it resolved that we ask the College to give us six thousand of our own

dollars for useful employment. There will still remain in the cobwebby coffers of the College 45,000 or so idle dollars each hundred of which after a whole year's effort can manage to beget

only two or at most three of their kind. S suggest that we get the stocking out from un the mattress and go out and buy things.

Medico-Historical

Aegrescitque Medendo

(The healing hand but chafes)

The following Letter will explain itself and needs no Apology:

Sir,

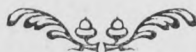
"I am one of that sickly Tribe who are commonly known by the name of Valetudinarians; and do confess to you, that I first contracted this ill Habit of Body, or rather of Mind, by the Study of Physick. I no sooner began to peruse Books of this Nature, but I found my Pulse was irregular, and scarce ever read the Account of any Disease that I did not fancy myself afflicted with. Doctor Sydenham's learned Treatise of Fevers threw me into a lingering Hectick, which hung upon me all the while I was reading that excellent Piece. I then applied my self to the Study of several Authors, who have written upon Phthisical Distempers, and by that means fell into a Consumption; till at length, growing very fat, I was in a manner shamed out of the Imagination. Not long after this I found in myself all the Symptoms of the Gout, except Pain; but was cured of it by a Treatise upon the Gravel, written by a very Ingenious Author, who (as it is usual for Physicians to convert one Distemper into another) eased me of the Gout by giving me the Stone. I at length studied myself into a Complication of Distempers. . . . My Complexion is grown very sallow, my Pulse low, and my body Hydropical. Let me therefore beg you Sir, to consider me as your Patient, and to give me more certain Rules to walk by than those I have already observed and you will very much oblige, Your Humble Servant."

This Letter puts me in mind of an Italian Epitaph written on the Monument of a Valetudinarian; Stavo ben, ma per star Meglio, sto qui: (I was well; would be better; and here I am). The Fear of Death often proves Mortal, and sets People on Methods to save their Lives, which

infallibly destroy them. This is a Reflection made by some Historians, upon observing that there are many more thousands killed in a Flight than in a Battle; and may be applied to those Multitudes of Imaginary Sick Persons that break their Constitutions by Physick, and throw themselves into the Arms of Death, by endeavouring to escape. This Method is not only dangerous, but below the practice of a Reasonable Creature. To consult the Preservation of Life, as the only End of it, To make our Health our Business, to engage in no Action that is not part of a Regimen, or course of Physick, are Purposes so abject, so mean, so unworthy human Nature, that a generous Soul would rather die than submit to them. Besides, that a continual Anxiety for Life vitiates all the Relishes of Life, and casts a Gloom over the whole Face of Nature; as it is impossible we should take Delight in anything that we are every Moment afraid of losing.

I do not mean, by what I have here said, to lay the blame on any one to blame for taking due Care of their Health. On the contrary, as Cheerfulness, a clear Mind, and Capacity for Business, are in a great measure the Effects of a well-tempered Constitution, a Man cannot be at too much Pains to cultivate and preserve it. But this Care, which we are prompted to, not only by common Sense, but by Duty and Instinct, should never end in groundless Fears, melancholy Apprehensions, and imaginary Distempers, which are natural to every Man who is more anxious to live than to be healthy. In short, the Preservation of Life should be only a secondary Concern, and the Direction of it our Principal. If we have this Frame of Mind, we shall take the best Means to preserve our Life, without being over-sollicitous about it; and shall arrive at that Point of Felicity which Martial has mentioned as the Perfection of Happiness, of neither fearing nor wishing Death.

Addison, "The Spectator"



Book Reviews

The History of Medicine

You will have noticed that I usually find space for some notes on the history of medicine and also excerpts from the medicine of history. In former times the doctor dominates the stage: in the present he is usually one of the minor dramatis personae who plays his part in the drama of contemporary world history. Both aspects of the subject are equally interesting, both complement and supplement each other.

The general favour with which these notes and excerpts have been received has been both gratifying and encouraging. I have felt that not a few of my readers might feel the desire to read more systematically the story of the growth of our craft. I have felt, indeed, that it would not be out of place to recommend a book which would satisfy this desire and the book I have in mind is Guthrie's "A History of Medicine." Its 448 pages carry the reader from the dark days of myth and magic to the time of Osler: from the gloomy caves of neolithic troglodytes to the modern hospital. The pure magic of the stone age becomes tinged with reason in Egypt, becomes still more reasonable in Greece, slowly develops a scientific trend among the Arabs, loses more and more of its final coloring during the Renaissance, burgeons forth in the 17 and 18 hundreds until it reaches its present status as a science.

The history of medicine falls into two main divisions—before the renaissance and after the renaissance. There was no scientific medicine before the Grecian period and Greeks dominated the field for a thousand years, first in Greece then in Alexandria and finally in Rome. During the Dark Ages scientific advance was halted in Europe and was carried only by the Arabians who, as we know, held the torch and kept it alight until it was taken again by the Italians, French, Germans, and British who over the centuries have given us what we have today. And in later years the New World has added its great contribution to the present whole.

In 22 readable and excellently illustrated chapters Guthrie tells the story period by period. It is more than an interesting narrative of the past, it is also a guide to the future for, in the words of Winston Churchill "The longer you can look back the further you can look forward." Those who are curious about the men who gave us our knowledge and our tools will learn about them much more by reading Guthrie's History of Medicine, and those who wish to go deeper into the subject will find in it abundant references for further study. **A History of Medicine** by Douglas Guthrie, M.D., F.R.C.S., E.D., F.R.S.E.,

448 pages with 72 plates: J. B. Lippincott, W., Medical Arts Bldg., Montreal. \$7.50. J. C. H.

Pitkin's Conduction Anaesthesia. This is a large, well bound, single volume of some thousand pages, printed in double columns, on good paper, well bound. It is represented as the "life work and study" of the late Dr. George P. Pitkin, "enhanced by recent developments by other authorities." Price \$20.00. The J. B. Lippincott Co., Montreal.

The title is defined in the Preface as denoting the "interruption of nerve conduction, principally sensory conduction, without obtaining consciousness."

The material of the book is well organized and encompasses all fields of basic requirements related to the subject. Approximately one-fifth of the book is devoted to anatomy, and this section is edited by Dr. Winnifred Pitkin, a daughter of her illustrious father, whose degrees bespeak an extensive medical education at Oxford. The physiology of anaesthesia is also well covered. The remainder of the book is devoted to a discussion of the subject on a regional basis. One notes a well written chapter on Refrigeration Anaesthesia.

The only disappointment noted is the prevalence of poorly retouched photographs and "second-hand" types of cuts amongst the 606 illustrations. It is to be hoped this feature will be corrected in subsequent editions. Notwithstanding this criticism, the book is a good one, and is heartily recommended by the reviews to all who have occasion to practice conduction anaesthesia.

C. E. CORRIGAN.

A New Medical Journal

The Overseas Post-Graduate Medical Journal, Vol. 1, No. 1, October, 1946, has been sent to us for review. As a sign of the resurgence of British medicine after a second devastating world war it is welcome. Since London is a particularly cosmopolitan city and has many medical schools, it has distinct advantages as a post-graduate centre. The Post-Graduate Medical Journal, which has just launched its overseas edition, aims to cater to those physicians who seek to extend their knowledge, either for its own sake, or for proceeding to higher qualifications.

It is published quarterly at 7/6 per number by the Fellowship of Post-Graduate Medicine, 1 Wimpole Street, London, W.1; the editor is F. Croxon Deller, M.D., M.R.C.P., D.A., and there is a strong advisory editorial board. The scope of the Journal is indicated by the editorial motto: "a disinterested

Is Medication Called For in the Correction of Constipation?

*New investigation emphasizes
dietary requirements in treatment of
physiologic constipation*

IN a recent article published in the American Journal of Digestive Diseases* the causes of constipation were reviewed, and a simple dietary procedure recommended for patients lacking in adequate cellulosic residues.

Doctors were reminded that patients suffering from constipation as a rule indulge in self-treatment, and it is therefore important to establish and correct the physiology in each patient over a 24-hour period.

PROCEDURE RECOMMENDED

Outline a diet in keeping with basal requirements, providing the essentials needed for residue and nutriment.

Diets prepared by investigators called for a wheat bran—such as Kellogg's All-Bran—for the following reasons:

1. **Cellulose content.** Wheat bran supplies a resistant form of cellulosic material necessary for normal functioning of the alimentary tract.
2. **Laxative properties.** Wheat bran operates to assist the regularity of bowel movement by action on the contents of the colon, rather than on the colon itself.

CONCLUSION

If this simple procedure does not correct constipation, particularly in individuals where a substantial amount of cellulose is lacking in the diet—then medication is called for.

**Management of Chronic Constipation:*
by Michael H. Streicher, M.D.

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endeavour to learn and propagate the best is known and thought in the world."

A policy of this Journal is to teach through illustrations. This number presents numerous clear and instructive reproductions of drawings, photographs and microphotographs. An article on the technique of thyroidectomy is particularly well illustrated. As befits the centenary of general anaesthesia, there is an interesting article "Anaesthesia 1842-1900."

The paper is good and the type makes for easy reading. The Overseas Post-Graduate Medical Journal may be recommended to those practitioners who wish to keep abreast of the times.

The Services of the Victorian Order of Nurses Are Available for Veterans

It is felt that some of the members of the Medical Profession in the city may not be aware that the services of the Victorian Order of Nurses are available as an extended medical service for veterans eligible for treatment by the Department under the regulations, and it is desired to bring this to your attention through the pages of this journal.

The service will consist of home nursing, to patients of the Department by the qualified nurses of the Order and will be supplied upon request from the attending physician or Departmental Hospital is submitted to the Branch Office of the Order. The originator of the request must notify the District Medical Officer immediately after making the request.

Reimbursement for the service will be on a rate of \$1.40 per visit for all areas. This rate will apply until December 1st, 1946, and may be adjusted, as conditions indicate, yearly thereafter. It is understood that if a visit is made to a patient who fails to qualify for treatment by the Department, the payment for the call shall be the responsibility of the patient.

Attending physicians will include on February 1st, 1946, 525 details of any nursing services rendered and forward the report to the Department of Veterans Affairs.

It is considered that the introduction of this additional treatment service for eligible veterans will prove highly advantageous when used in selected cases and will have the effect of relieving hospital over-crowding by allowing patients to only require occasional dressings, as an instance, to be discharged from hospital earlier than would otherwise be the case, and in providing nursing care in minor illnesses which otherwise would require hospitalization.

J. Laurie Lamont, M.B.,
Departmental District Medical Officer
Dept. of Veterans Affairs, Winnipeg

Association Page

Minimum Income Tax Returns by Members of the Medical Profession

As a matter of guidance to the medical profession and to bring about a greater uniformity in the returns to be furnished to the Income Tax Division of the Department of National Revenue in the annual Income Tax Returns to be filed, the following instructions are set out:

Income

There should be maintained by the doctor an accurate record of income received, both as fees for his profession and by way of investment income. The record should be clear and capable of being readily checked against the return filed. It may be maintained on cards or in books kept for this purpose.

Expenses

Under the heading of expenses the following amounts should be maintained and records kept available for checking purposes in support of claim made:

- (j) Medical, surgical and like supplies;
- (k) Office help, nurse, maid and bookkeeper; laundry and malpractice insurance premiums. (It is to be noted that the Income War Tax Act does not allow as a deduction a salary paid by a husband to a wife or vice versa. Such amount, if paid, is to be added back to the income);
- (l) Telephone expenses;
- (m) Assistants' fees;

The names and addresses of the assistants to whom fees are paid should be furnished. This information is to be given each year on the Income Tax form known as Form T.4, obtainable from the Inspector of Income Tax.

(n) Rentals paid;

The name and address of the owner (preferably) or agent of the rented premises should be furnished (See (j));

(o) Postage and stationery;

(p) Depreciation on medical equipment;

The following rates will be allowed provided the total depreciation already charged off has not already extinguished the asset value:

Instruments—Instruments costing \$50 or under may be taken as an expense and charged off in the year of purchase.

Instruments costing over \$50 are not to be charged off as an expense in the year of purchase but are to be capitalized and charged off ratably over the estimated life of the

instrument at depreciation rates of 15 per cent to 25 per cent, as may be determined between the practitioner and the Division according to the character of the instrument, but whatever rate is determined upon will be consistently adhered to;

Office furniture and fixtures—10 per cent per annum.

Library—The cost of new books will be allowed as a charge.

(h) Depreciation on motor cars on cost:

- Twenty per cent 1st year;
- Twenty per cent 2nd year;
- Twenty per cent 3rd year;
- Twenty per cent 4th year;
- Twenty per cent 5th year.

The allowance is restricted to the car used in professional practice and does not apply to cars for personal use.

For 1940 and subsequent years the maximum cost of motor car on which depreciation will be allowed is \$1,800.

(i) Automobile expense; (one car)

This account will include cost of license, oil, gasoline, grease, insurance, washing, garage charges and repairs;

Alternative to (h) and (i) for 1940 and subsequent years—

In lieu of all the foregoing expenses, including depreciation, there may be allowed a charge of 4½c. a mile for mileage covered in the performance of professional duties. Where the car is not used solely for the purpose of earning income the maximum mileage which will be admitted as pertaining to the earning of income will be 75 per cent of the total mileage for the year under consideration.

For 1940 and subsequent years where a chauffeur is employed, partly for business purposes and partly for private purposes, only such proportion of the remuneration of the chauffeur shall be allowed as pertains to the earning of income.

(j) Proportional expenses of doctors practising from their residence—

(a) owned by the doctor;

Where a doctor practises from a house which he owns and as well resides in, a proportionate allowance of house expenses will be given for the study, laboratory, office and waiting room space, on the basis that this space bears to the total space of the residence. The charges cover taxes, light, heat, insurance, repairs, depreciation and interest on mortgage (name and address of mortgagee to be stated):

(b) rented by the doctor.

The rent only will be apportioned inasmuch as the owner of the premises takes care of all other expenses.

The above allowances will not exceed one-third of the total house expenses or rental unless it can be shown that a greater allowance should be made for professional purposes.

(k) Sundry expenses (not otherwise classified)—The expenses charged to this account should be capable of analysis and supported by records.

Claims for donations paid to charitable organizations will be allowed up to 10 per cent of the net income upon submission of receipts to the Inspector of Income Tax. This is provided for in the Act.

The annual dues paid to governing bodies under which authority to practice is issued and membership association fees not exceeding \$100, to be recorded on the return, will be admitted as a charge. The cost of attending post-graduate courses or medical conventions will not be allowed.

(l) Carrying charges;

The charges for interest paid on money borrowed against securities pledged as collateral security may only be charged against the income from investments and not against professional income.

(m) Business tax will be allowed as an expense, but Dominion, Provincial or Municipal income tax will not be allowed.

Professional Men Under Salary Contract

3. It has been held by the Courts that a salary is "net" for Income Tax purposes. The salary of a Doctor is therefore taxable in full without allowance for automobile expenses, annual medical dues, and other like expenses. If the contract with his employer provides that such expenses are payable by the employer, they will be allowed as an expense to the employer in addition to the salary paid to the assistant.

February, 1943.

Re Professional Registry

From the available information it has been ascertained that there is, at present, no one place to which members of the profession in the Province, or those who might be seeking to locate in the Province, may obtain information concern-

ing practices available for disposal, assistantship or locum tenens.

Inquiries have formerly been directed to the Manitoba Medical Association, the College of Physicians and Surgeons, the Department of Health and Public Welfare, and occasionally to the Doctors' Registry or the Business Bureau. The National Employment Service of the Unemployment Insurance Commission through its Executive and Professional Division receives applications from commercial firms and is anxious to fill in any possible manner.

It now is proposed to set up in the Manitoba Medical Association office, 602 Medical Arts Building, a card index system whereby information is available to doctors seeking location, or from physicians, to villages or municipalities, etc., seeking the services of a medical man, may be made available. It is hoped that members will co-operate by sending along any relevant data, concerning practice disposal, assistantship or locum tenens.

Association Fees — 1947

The treasurer reports that the membership fees for 1947 are being received daily. Inasmuch as there has been some misunderstanding in respect to the fee payable, the following notes are added:

The new fee for joint membership in the Manitoba Medical Association and the Canadian Medical Association is \$35.00, which includes both joint memberships.

Complimentary membership is given to those leaving the forces, for a period to include one calendar year following demobilization. This usually includes the year of discharge, plus the following year. No complimentary membership will be extended beyond the end of 1947.

The fee for the first three years after graduation (not the first three years of practice) is \$15.00. Where the individual pays his own fee, but can deduct it for income tax purposes because he has a salary, the amount is \$15.00.

Where the employer pays the fee, it can be deducted by the employer for income tax purposes and the amount will be \$35.00.

In cases where both husband and wife are in practice, the double fee is reduced by \$7.00. They will receive only one copy of each journal.

If there are any further points about which information is required, kindly communicate with the Association Office.

M. T. Macfarlane

For the Treatment of
BURNS
INFECTED WOUNDS
ABSCESS CAVITIES
SUPERFICIAL SKIN DISEASES
VAGINAL INFECTIONS



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The most effective concentration . . . the most effective vehicle . . . the most effective method yet developed for local application of sulfathiazole. Sulfamul is applied with minimum discomfort to the patient, provides definite local anaesthetic action, requires no frequent changes of dressing, tends to shorten healing time, and promotes most satisfactory cosmetic results.

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Sterile gauze is impregnated with Sulfamul and then packed with moderate firmness into abscess or other infected cavity. The pack may be left in position for periods up to 72 hours, surface changes only being made.

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MODES OF ISSUE: 2 oz., 1 lb. and 7½ lb. glass jars.

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 long nozzle,
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Obituary

Dr. William Wesley Lorne Musgrove

Dr. William Wesley Lorne Musgrove died suddenly at his home in Winnipeg on January 4. Born in Winnipeg, January 15, 1882, he moved at an early age to Stonewall. He was educated in the Stonewall schools and Wesley College before entering Manitoba College where he graduated with honors and as medallist in 1906. After spending a year as house surgeon in the Winnipeg General Hospital, he began practice in Winnipeg. On the outbreak of the First World War he enlisted in the C.A.M.C. and went overseas in 1916 as a major with No. 4 Casualty Clearing Station, a unit raised by Manitoba Medical College. On being invalided home he served as president of the Medical review board for Military District 10.

In 1920 he was made a Fellow of the American College of Surgeons. In 1932 he was president of Manitoba Medical Alumni Association, and in 1934-5 he was president of Winnipeg Medical Society. In 1946 the Society conferred on him honorary life membership.

From 1919 to 1945 he lectured in surgery and clinical surgery in the Faculty of Medicine, Uni-

versity of Manitoba, and served for a time as honorary surgeon in the out-patient department of the Winnipeg General Hospital.

Dr. Musgrove was a fine athlete. He was a member of the Shamrock Football Club. He won the Manitoba Championship in 1901 and toured eastern Canada. He was active in collegiate sport and after graduation turned to curling and golf, being a charter member of the Niakwa Country Club.

He was an active member of Young Men's Christian Church, serving on the board of stewards and music committee, and was prominent in the Kiwanis Club.

Surviving are his widow and three sons, of whom served in the Second World War, and of whom are doctors. Col. G. Stuart Musgrove, R.A.M.C., and Dr. J. Edward, of the Mayo Hospital, Rochester.

He died as he would have wished—in his home. On the morning of his death he visited the Manitoba Arts Building and in driving away greeted the writer with a smile and a wave of the hand. *Atque vale!*

Medical Happenings for February

Tuesday, 4—

Luncheon, Misericordia Hospital, 12:30 p.m.

Wednesday, 5—

Tumor Clinic, Winnipeg General Hospital, 9:00 a.m.

Thursday, 6—

Luncheon, Winnipeg General Hospital, 12:30 p.m.

Wednesday, 12—

Tumor Clinic, Winnipeg General Hospital, 9:00 a.m.

Thursday, 13—

Ward Rounds, Children's Hospital, 11:00 a.m.

Thursday, 13—

Luncheon, St. Boniface Hospital, 12:30 p.m.

Friday, 14—

Tumor Clinic, St. Boniface Hospital, 10:00 a.m.

Friday, 14—

Luncheon, Victoria Hospital, 12:30 p.m.

Tuesday, 18—

Luncheon, Grace Hospital, 12:30 p.m.

Wednesday, 19—

Tumor Clinic, Winnipeg General Hospital, 9:00 a.m.

Thursday, 20—

Ward Rounds, Children's Hospital, 11:00 a.m.

Thursday, 20—

Luncheon, Winnipeg General Hospital, 12:30 p.m.

Friday, 21—

Tumor Clinic, St. Boniface Hospital, 10:00 a.m.

Friday, 21—

Meeting, Winnipeg Medical Society, 8:15 p.m., Medical College.

Tuesday, 25—

Luncheon, St. Joseph's Hospital, 12:30 p.m.

Wednesday, 26—

Tumor Clinic, Winnipeg General Hospital, 9:00 a.m.

Thursday, 27—

Ward Rounds, Children's Hospital, 11:00 a.m.

Thursday, 27—

Luncheon, St. Boniface Hospital, 12:30 p.m.

Friday, 28—

Tumor Clinic, St. Boniface Hospital, 10:00 a.m.

Personal Notes and Social News

and Mrs. Frank O. Benner's daughter, Kathleen, was married in the Victory chapel of St. Matthew's Anglican church on January 29th, to Derek Eckersley, son of Mr. and Mrs. H. Eckersley, of Abbots Grange, Chester, England.

Donalda Huggins left by airplane for Hartford, Conn., where she will take a three months' post graduate course in anaesthesia at Hartford hospital.

Peter Berbrayer was married on February 2nd to Caroline, daughter of Mr. and Mrs. N. Freedman. After a honeymoon to Chicago and points South, Dr. and Mrs. Berbrayer will reside at 670 Lansdowne Ave., Winnipeg.

J. C. Johnston, formerly of St. Boniface Sanatorium, St. Vital, Man., is now on the staff of The Mountain Sanatorium, Hamilton, Ont.

Wallace W. Grant has been appointed superintendent of the Children's Hospital, Winnipeg. His new duties will commence immediately.

J. N. Edmison, formerly on the staff of the Sanatorium at Ninette, Man., has been appointed to the staff of the Deer Lodge hospital. Dr. and Mrs. Edmison will reside in the Maydan, Centennial St., Winnipeg.

Norman L. Elvin, accompanied by Mrs. Elvin, is attending the 16th Annual Mid-Winter Post Graduate Clinical Convention in Ophthalmology and Otolaryngology held in Los Angeles, January 31 to February 4th.

and Mrs. W. G. Lyall have left Winnipeg to spend the winter in British Columbia.

Dr. and Mrs. H. O. McDiarmid's (Brandon) son, John Galloway McDiarmid, is engaged to marry Joan Carlos, daughter of the late Mr. and Mrs. W. G. Yule, of Winnipeg and Regina. The wedding to take place at Vancouver, March 1st.

Dr. and Mrs. E. J. Washington have left for Los Angeles where Dr. Washington will attend the Annual Mid-Winter Post Graduate Clinical Convention in Ophthalmology and Otolaryngology.

Changes of Address

The College of Physicians and Surgeons of Manitoba have reported the following list of changes and additions as of January 28th, 1947.

Dr. G. M. Black, from Winnipeg to Sherridon, Man.

Dr. M. E. Bristow, from Portage la Prairie to Brandon, Man.

Dr. H. Cohen, from Winnipeg to Los Angeles, Cal.

Dr. E. G. Hawes, from Brandon to Saskatoon, Sask.

Dr. H. Herschman, from Winnipeg to Nyes, Ont.

Dr. G. A. Little, from Brandon to Psychopathic Hospital, Winnipeg.

Dr. T. F. Malcolm, from Dauphin to Swan River, Man.

Dr. I. J. Matas, from Armed Forces to 121 Euclid Ave., Winnipeg.

Dr. H. W. C. North, from Virden, Man., to Carman, Man.

Dr. I. W. Sneath, from Pine Falls, Man., to Lac du Bonnet, Man.

Dr. D. B. Stewart, from Vita, Man., to Deer Lodge Hospital.

Dr. G. E. Wakefield, Tranquille, B.C., to Winnipeg.

Dr. D. H. Booth, at The Pas, Man.

Dr. R. M. King, at Virden, Man.

Dr. J. C. MacMaster, at 1120 Grosvenor Ave., Winnipeg.

Dr. F. J. E. Purdie, at Brandon, Man.

Dr. A. D. Wolfe, at 108 Harvard Ave., Winnipeg.



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Department of Health and Public Welfare

Comparisons Communicable Diseases — Manitoba (Whites and Indians)

DISEASES	1946		1945		TOTALS	
	Dec. 1 to Dec. 28	Nov. 3 to Nov. 30	Dec. 2 to Dec. 29	Nov. 4 to Dec. 1	Jan. 1 to Dec. 28, '46	Jan. 1 to Dec. 1, '45
Anterior Poliomyelitis	0	1	0	0	47	21
Chickenpox	133	162	256	277	1447	2441
Diphtheria	13	16	17	22	196	279
Diphtheria Carriers	3	9	3	1	49	37
Enteritis—Amoebic	0	0	0	0	2	1
Enteritis—Bacillary	0	0	0	0	2	20
Erysipelas	0	2	6	7	62	53
Encephalitis	0	0	0	0	5	8
Influenza	3	7	22	8	198	199
Measles	261	83	13	6	2189	508
Measles—German	0	3	0	2	26	38
Neisseria Meningitidis	3	0	0	2	20	14
Mumps	122	112	83	82	2331	1491
Neonatal Jaundice	0	0	0	0	0	0
Pneumonia—Lobar	11	6	14	9	177	144
Rubella Fever	0	0	1	0	1	2
Scarlet Fever	31	43	75	53	603	773
Strep. Sore Throat	2	1	6	5	37	39
Smallpox	0	0	0	0	0	0
Syphilis	0	0	0	0	1	3
Typhoid	0	0	0	0	2	5
Tuberculosis	90	87	78	133	1043	803
Typhoid Fever	0	1	0	1	21	41
Typhoid Paratyphoid	0	0	0	0	3	6
Typhoid Carriers	1	0	0	0	4	3
Typhus	1	1	0	2	19	13
Crouping Cough	30	51	59	25	401	375
Gonorrhoea	133	153	224	228	2358	2328
Syphilis	35	69	67	55	686	621
Gonorrhoea and Enteritis, under 1 yr.	3	7	3	4	230	29

-Week Period Report—December 1 to December 28, 1946

DISEASES	*736,000 Manitoba	*3,825,000 Ontario	*906,000 Saskatchewan	*2,972,000 Minnesota
White Cases Only				
Proximate population.				
Anterior Poliomyelitis	15	1	19	
Chickenpox	133	1659	159	
Gonorrhoea and Enteritis, under 1 yr.	3			
Diphtheria	13	32	6	31
Diphtheria Carrier	3			
Enteritis—Amoebic		9		11
Enteritis—Bacillary		1		
Erysipelas		3	1	
Influenza	3	13		
Obtuse Jaundice		35		
Measles Enceph.		2	1	
Measles	261	329	1522	18
Measles—German		30	1	
Neisseria Meningitidis	3	1	5	5
Mumps	122	1201	392	
Pneumonia, Lobar	11			
Scarlet Fever	31	418	9	136
Strep. Sore Throat	2	12		
Typhemia		1		
Tuberculosis	90	218	37	9
Typhoid Fever	1		1	
Typhoid Para-Typhoid		1		
Typhus	1	3		3
Crouping Cough	30	336	21	33
Gonorrhoea	133	382		
Syphilis	35	298		

DEATHS FROM COMMUNICABLE DISEASES
For the Month of November

Urban—Cancer, 57; Diphtheria, 2; Influenza, 2; Pneumonia, Lobar, 1; Pneumonia (other forms), 5; Poliomyelitis, 1; Syphilis, 2; Tuberculosis, 1; Hodgkin's Disease, 1; Dis. of Pharynx and Tonsils, 1; Diarrhoea and Enteritis (under 2 years), 5. Other deaths under 1 year, 26. Other deaths over 1 year, 192. Stillbirths, 26. Total, 244.

Rural—Cancer, 30; Lethargic Encephalitis, 1; Pneumonia, Lobar, 3; Pneumonia (other forms), 11; Tuberculosis, 11; Diarrhoea and Enteritis (under 2 years), 7. Other deaths under 1 year, 25. Other deaths over 1 year, 151. Stillbirths, 15. Total, 191.

Indians—Pneumonia (other forms), 4; Tuberculosis, 4. Other deaths under 1 year, 3. Other deaths over 1 year, 11. Stillbirths, 2. Total, 16.

As this is the last four-week report for 1946 we can see what has happened during the year. Remember these figures for the year are only preliminary and will be changed slightly in most instances.

Anterior Poliomyelitis—Only 47 cases—quite fortunate.

Diphtheria—196 cases—the third best year in our history (1937—109 cases, 1936—175 cases). We can and will reduce this figure still lower. Diphtheria carriers have increased. This may easily happen for some time in an immune population.

Measles and Mumps have increased over the 1945 figures.

Tuberculosis shows an increase in cases. This is probably due to increased case finding through tuberculosis surveys.

Typhoid Fever shows the lowest number of cases in any year.

Gonorrhoea and Syphilis show a slight increase in number over the 1945 figures. These numbers will soon show a decrease we expect.

CRYSTALLINE PENICILLIN—CONNAUGHT

Research in the Connaught Medical Research Laboratories now makes available to the medical profession in Canada a highly purified penicillin in crystalline form.

ADVANTAGES

HIGH PURITY—This product is supplied as a white crystalline powder.

MINIMUM OF PAIN OR LOCAL REACTION—Because of its high degree of purity, pain on injection is seldom reported and local reactions are extremely rare.

STABLE AT ROOM TEMPERATURE—Crystalline penicillin is heat-stable, and in the dried form can be safely stored at room temperature for at least three years. No refrigeration is required except when the material is in solution.



PHOTOMICROGRAPH
OF PENICILLIN CRYSTALS

HOW SUPPLIED

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